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ggtagcacaa cagggtttggt tctgtttgtc aagggttcgaa tccttgtgag acaacaacag 4260
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cctattaaaa gcgacctata agtcaaaagt ttggcaggat tgcttgatag tctttctgtg 4440
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tgggttcgtg ttttcgaatg agtgagt 5427

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(2) INFORMATION FOR SEQ ID NO:601

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 565 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...565

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:601

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ggacaaagct accggacgca tcatcacgca tctgatgtat aagcattgga cgagtgggtg 60
gagaccatac cacatccctt catcgcgaa cgcacggagg aatgatcacc accggcaaag 120
acatcatgga gggcgaaacc tacgaggctc gatgaaaccg tggtcgggta tcgaagattt 180
cagttggagc cctgacgaca gaacatagca tacgccaagc cgcaagaaaa cgggcatggc 240
atatttctgt ctaccaactc ggacatatat atctataatc tggcttcagg ccggcgacac 300
acatttccga agggatgatg ggctacgaca cctatccgaa gttagccccg acggcaagag 360
cattgcatgg atcagcatgg agcgcgatgg attgaaagcg atctgaagcg tcttttcgtg 420
ggcggatctt gccacaggaa acgcacccat gtaaaccac attcgattac aatgtggata 480
tgatccaatg gcaccggaca gtaagggtat ctatttcctt gcctgtaagg agcagagaca 540
atctggggga gatcacgctt gaaaa 565

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(2) INFORMATION FOR SEQ ID NO:602

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 512 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...512

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:602

ctttgggcta	aaaagatcaa	aaggctggtc	gatttttgtc	tcgcattgat	tttttagcta	60
tttccctgcc	ttttatgctg	atcatagctt	tgatcatttc	ctgcaagacg	ggggggctgc	120
aatcttctca	caagaacgca	tcggtctgga	ggaaagcctt	tcattgctata	taagtttcgc	180
tcaatgaagg	tgaatgagaa	gccaacaatc	agcctcagct	attccagaaa	aatgattcga	240
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aatatcatca	aaggcgatat	ggctatcgta	ggctacaggc	ctgaagggaa	tattacatct	360
gccaataaat	ggaaaagaat	ccggactacg	cctactgtac	gaaataaggc	cgggtctggt	420
ttcctatgct	acgctgacaa	cgctatacgg	atacgatagc	aaaaatgctg	gtgcgtctgg	480
agatggattg	tatacttgca	aaaatcagtt	ct			512

(2) INFORMATION FOR SEQ ID NO:603

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 930 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...930

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:603

attggatcga	tacgagtatc	ggtggcaata	tcggattcta	tatggcgaaa	atagtctgag	60
cggacagaaa	gattctcgca	catacgattt	tggcggcatt	atcaagttgc	cctaacgctt	120
ccctatggat	tcggtatcga	cagcgatttg	aatacaatac	gaactccggt	tacagcggag	180
gattcaagtc	tggacgatgg	ctttggaatg	cttcgctttc	atacagcttc	ctccgtgaca	240
agggcgta	ctgcgtgtca	atggctatga	catcctcggg	cagcgggtcaa	gtatagccgt	300
tctgcttcgg	ccatcaatat	agaagagagc	atgtccaata	cgacggacgc	tacgtgatgg	360
tggactttat	ctaccgattc	aacgccttca	gtgtgggtgga	tctcgcagcg	atcatcagcg	420
tggcaatatg	aatcgctcgg	gccacctttc	ggcgggtggca	gacgaccgtc	ctgatcagac	480
gccacctatc	gcaagagaca	aagtgtgtaa	gtgtttttat	aacgaaccga	tcgagggggcg	540
tgtcaaaatt	tgattttgtc	gcagccctct	ttctttgtct	cttgcagtgg	ttaggcaacc	600
ggcttcatct	tggaggccct	actttattag	cttttcgaga	catagaagcg	aatcaggcta	660
agattgtatt	tattctgtac	agacacgaaa	aacagtcfaat	tgacaatgaa	atcttcccgg	720
aaaatgccat	gcgacatctc	atctatcggg	ttaacaggct	cacacggaac	ctccactcc	780
ccgacctgcc	atccgacaca	gagcagatag	catcttccat	caatagacca	tagatcctct	840
catgtgagac	catagtatcc	tctcatacga	gaccatagta	tctctcatgt	aagaccatag	900
tatcctctca	tgtaagacca	tagtatcctc				930

(2) INFORMATION FOR SEQ ID NO:604

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 310 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...310

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:604

gggcacgaat	gacacgggta	ttattcctga	ccagcatact	gcccgatgga	gtacttccga	60
taattgggaa	aatacggcat	cctttatctc	acccttgat	aaacgagcaa	tttacaggca	120
tcgcgctgtg	gcaaagcatg	tttggcattc	gttcttcggg	caatggatag	tcgtagtcgg	180
caatggaaat	atccgtgtcg	taatcatcgt	ggtatgatat	tttgcgcggc	aaaattagca	240
aatacatggc	cgaacatgct	cttttctgag	tgtactgatc	ccattcgaga	tgtaaatac	300
ggatttctac						310

(2) INFORMATION FOR SEQ ID NO:605

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 596 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...596

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:605

gaggaagaac	caatccctct	cggaaaaacct	acactcaacg	aactgatggc	aaccactgg	60
aaggaggaag	cgaatacatc	gaactataca	accctacgac	aaacctgtcg	ttccctctaa	120
attcgccata	ggcatactcc	gcaatggagc	tacaccacca	caactgcact	gccgactgta	180
gccgatacac	tctatcgggg	caatacatcg	tctttgccaa	gaagagttag	ggagtcactg	240
acttcacccc	caagcgcaaa	atgttggtcac	gatgagcaac	ctgcctcagc	tggcaataag	300
ggattttacga	tcggactggt	cgaagaaggc	cttgatcaac	ctctgaagaa	gtgggtctatt	360
cacctaaaat	gctcggagaa	ggaaaatgta	acagacgagg	gggtatcact	ggagccgtat	420
ctccttcgag	actccggatt	cgattccgac	caactgggca	ggcggactcc	atcggcaggg	480
atatgttact	cggctacctn	aactnccaat	cctcaatgca	gatactccca	gtagggtctac	540
caataacgaa	acagaagcaa	cggaaaagct	acctgncacg	gcagtatacc	gaagaa	596

(2) INFORMATION FOR SEQ ID NO:606

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 653 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: UNKNOWN
(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...653
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:606

gcatggcttg	ttttgacctc	tctgcggtta	tggggggaga	ggctgaaacc	gacaatggct	60
gcgtagcggg	ctgatgcata	ccgatcatat	acattatagg	tgggtggata	tacccgtcat	120
ggaggactgg	tggccgatgc	cttactcgct	ctattgtccg	tggcaaatg	gataggagcg	180
accagtncaa	actctaaata	gccttacaaa	ccctgatgat	tacgcttgat	ttccggcata	240
gcaggggtga	cgaagctatg	ccggtgcgaa	tgacacttgt	gcccccttac	caatggcaca	300
ccactcggca	tacgcatact	cgcatcccca	tgccaacaaa	ctcaaccgcc	gaaaaaagga	360
atcgggcacc	ttcctcttcg	acaaaaacac	gaccataaat	ggacaaaaca	tggttcgtga	420
atttcgagaa	actcgagcct	aaaattattc	ttttggctcg	caaaaatttc	acttctcaaa	480
ccaaaagcaa	attttccgcg	gccacgtttt	tcagaaccac	ggatcacaa	cttttggcac	540
acaaataaaa	ctctcggagc	catcggtcct	tttatctcag	caaggatgta	aaattcgacc	600
gattacacat	gcctaaacct	ttttcgctag	gcattgtata	gagtcatggt	ttc	653

(2) INFORMATION FOR SEQ ID NO:607

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 682 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
(ii) MOLECULE TYPE: DNA (genomic)
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: UNKNOWN
(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...682
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:607

gcccttggac	tctccaggat	cnccgaatg	ttctctgcca	cgccttggtc	tcattcgaca	60
cagagaccga	ctcgaaagat	gcacttnggg	ccaatatcta	tggcatagac	gccttttgnn	120
gggggacgcc	acacggcccc	aatagacaaa	ttcccatccg	gaagtagtac	ttaacccaac	180
aaaaaaccaa	gaaataagca	atgaatatcg	ataattcttc	cacaacgatt	cagggaaga	240
ccatctcgtc	agggttgac	gcattaaaaa	cagctttcta	agtactttta	tagtggttaa	300
gccccgttag	ttatgtatca	ttctctatct	gaaagcctct	gcaggttccg	gaccacagga	360
tagagcgtaa	aaaaatttat	cctcttgatt	tttactgctg	atcgttttcc	tctctacact	420
ctcaggcaat	acctcttggt	agagattgaa	gattatgccg	aggaatacga	agaagaattg	480
aaaagtctat	cgaaatgctt	accggccatc	agcttatgca	taccatgcct	tctcatgatc	540
tctcaacagg	agcatcagct	ggtggatgta	gaagcttttg	aggggcttta	agcgatggat	600
tgaagcttta	ttctcggcac	ttcgggtaaa	catattgatt	gatggcaaga	cgatgccggg	660
agtgaagaac	tctctttcga	ta				682

(2) INFORMATION FOR SEQ ID NO:608

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 645 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc feature
 - (B) LOCATION 1...645

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:608

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cagccagtgt tcccagttat ataaaaacaac cccaggggatg cctttactaa cccctgaggt      60
tcttttaaat aacttggtcc attgccggat ttcgtctatg ttcagtcac cgttcgtcgt      120
tgaatcgggtg aaatcttttt acatggcggtg aaagaggcca agaagccaca gacaatccct      180
gggaagttgg ctataagatt ggccaatcct tcttcttacg aataaaacca taccctaccc      240
acagtcgcag ttgatacctg cgaccattgg ctgaagccaa tcacctttat gtccgagaga      300
ttggaaccaa tctgtggaat ataagaaaca tacatcgcca tagtgttgcc gtggcaatcc      360
aaccgagaac tgacaaaaat ttttcttgat tcttttacta ccatgttttag ttcttggtt      420
tagcaaagat agtattcgca attaatacaa gtaggtatgt aacaaagaaa aatatatgag      480
gtcgatgatt gtttaaacac tgtatgttgc gccttctctg atgctatttc tgtgccggct      540
agctctctga ggtgtacga gtgcagattc gattctcaaa tatccatctg attattgtta      600
cacttgtaga aattttcatg gccgacatcc gaataaaaga atacc                      645

```

(2) INFORMATION FOR SEQ ID NO:609

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 754 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc feature
 - (B) LOCATION 1...754

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:609

```

ggaaattacc cttaaatctt ttctatttag gcaaacactc aaaaaataat tttatgtatt      60
tgtccataac ggagaatatg cttatggcca agataccttc ctactgtttc aaggccaata      120
ggtaagaata ttcgcaaagt gcttcgtaaa ttatgcggaa acagcccaaa tatttattgt      180
tctgtccaga attggagaga tgaatacaat cttttatgta ctaaatagaca agatatatgt      240
ttacaagttg cacaatatga agaatacgag ttgagcgatt attttaaaca ctccctcggt      300
gaaattgtag tatacctcaa aggagggat tggtcgaggt tgcctatttt gggactttat      360
atgtttttac tctgcctcaa aaaaaaaga ataggtggtt atggtgctgc agtcgtatac      420
gaaagctaga agttgaatac ccgcaggaag taacgaaaaa atcaaaaaa acacaaaaaa      480
acagaatcgg gactagagcc gggggcatag ggaatggtta ttttccact catggggatt      540

```

```

cctgcgccaa aagctatatc tttgtaaagt gaaccaatca gcgtggaaga tttgtaatgc 600
ttgcaaccca cgagaaaaaa tgctaaaaca tttcttctag aaagctcttt cgacagctat 660
tctccaatgg gagtgtgcaa gccctttgtg cgaaggaagt tttacaaatt aaaagcataa 720
agatatgagc tatctttcac atccgaatcg gtgt 754

```

(2) INFORMATION FOR SEQ ID NO:610

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 377 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...377
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:610

```

gctgtgtcta ngtttggggn acccggtatc agctttctct atttctgcc aagatcaatt 60
atcgtcacgt tggtttgttc tatcagggat ttataaaaca aggactctac cccacgggat 120
cgaaaacttt agagactttc caatcttgga gacgtttaag ctcgccatct tggattagga 180
aaaatgttgg caatgactga cattgaatga caaagctgct ttcccttcgc tatcggtcac 240
tgtgaccaag ggagtgtacg cgttgcattc tgccagaaat acaagtcctt gtcgcagaaa 300
tctcatatat ctgaaatcca ttgttgcaat gtcgttgata caggctcgct gttcttttac 360
caaagaagggt gaccatt 377

```

(2) INFORMATION FOR SEQ ID NO:611

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 756 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...756
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:611

```

ggattttgtc tggtacaac aaacacagca atgaacatta acaactacaa atcaaactgc 60
aggagctct acagcaggct gtggagctga cccgtcggac ggacagcagg ccatcgaacc 120
gcagcacctg ctcaaggccg ttatggacag ggcgaaagcc tgaccgattt cctttttgcc 180
aagatggggc tgaacagggc agtatcgcca cggctgtgga caaactgata gagaaactgc 240
cccattatcg ggtggcgaac cctatctgtc gcatgagacc aatcagggtgc tacagcagcg 300
gaggacgcag cgcaccgat gaaggacaaa tacgtctctt tgggcacatc gtgctggcta 360
ttctgactac gcgatgcgag gcgtccactc tgtcaaggat gccggagcca ccgaacagct 420

```

tctgcagtcg	gccatcgaag	acttcggaag	gggcgcaacg	tgaccagtca	gagtgcggag	480
gaacagtaca	tgacttgag	aaatatgccg	tcaatctctg	tcagcgtgct	cgcgatggca	540
gttggatccc	gtgatcggtc	gcgatgacga	gatcaggcga	gtgctgcaat	tctctctcga	600
cgcaccaaga	acaatcctat	ccttatcggg	gagccgggtg	ggcaagacgg	ccatagccga	660
gggcttggct	tacaggatcg	tgcgtgcgac	gtgccggaga	atctgcgcaa	caagcagata	720
ttctctctcg	acatggtgcc	ttgatcgccc	gagcca			756

(2) INFORMATION FOR SEQ ID NO:612

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1069 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1069

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:612

tcgcggcggtg	tccagctcat	gcttctttga	tcacgccgtt	catatagtct	ctacatatgc	60
acctacgaca	agnccgtact	gcgttttgcc	attcatggct	gggcataaac	gtagtagttt	120
tcttctgtgt	cttgtagcag	ccagcctttt	cttggaaacat	tctgaagttc	tcggcagctt	180
tttcatacac	gtccgctcgt	gttcattctt	tcttacaggg	aaatcgatct	ccggacggat	240
aatatataga	gcgacttttc	gttgccttcc	gcttctttac	gagcttcttc	tgaataagga	300
cgtcgtaggg	gcgagatgct	acttgctcta	cgagttcttt	cggggacgta	ctcctttgaa	360
tggttttatg	atagccatat	tttttgtcga	gggaattatt	tgtttacacg	gaatttttcg	420
ttgccgtttt	tgatgaagtc	acgatttgac	gagctgcagc	cagaccggca	ttgatgttgg	480
cttctgctgt	tgagcaccca	tctttttggg	agtgggtgaag	tagcgacctt	cgaattttgc	540
atttcagcat	cgtttgtagg	cttgatgtcc	gtagcatatt	tgaagtcgta	cgctctgcca	600
taaacttgca	gataccctct	tcgtcgatta	cttcttgcca	gccgtattga	tcaggcaggc	660
acccttaggc	atthttggaga	ggagttggca	ttgattgatt	ttacagtctc	gggggtcttc	720
gggatgtgaa	gcgaactata	tcgcagggtt	cgaacagagc	atcgcgagaa	gcaacggcct	780
ttacccttct	ttctcgatat	ccgctgcaga	aacaaattgg	tcgtaagcat	aaattccatg	840
ccgaagcctt	ttgcgatacg	tgccacgttg	cggcctacat	tgcgtagtgcg	aggataccga	900
gcttctttgcc	cataagttca	gaaccggatg	ccggttgaag	agattgcgat	acatgaatac	960
gagcataccc	attaccaatt	gggcaacggc	attcgagttt	tgtcccggcg	tattcatcac	1020
gcacacattt	gggctgtagc	agcagccaan	tctacgtggt	catatcccg		1069

(2) INFORMATION FOR SEQ ID NO:613

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 622 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...622

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:613

```

gacatgacta tctccgccaa cgtgtcttgc aactctttgg caatatagag gtcttgcgat      60
ttttcaaggt gttgcgacag atgaaaagcg actcataaca cctttatcag cctttcgcct      120
ttctcttctt gggactcttg aaaaatcttt gacattgggt cttcatttgg acgttccgat      180
tcaacacact gctctttaat tgagagcggt ttatttcgct ctcatttctt ttcattgggaa      240
tacccttgaa acaagttccc ggatggcaac aggatctacc ttgccgtttt ggtttctgtc      300
atacttactt aatttttnatt gntatacaat tcactgttca ttttttgccg gtatatattac      360
ctgcaaagat gaatacatcc actatctaag attgcccgat aatgggggtg taccagcagg      420
gctacatcct ttcgttcata cttttttgtg ggagatgttc attgatgtcc atcaatacaa      480
tcgttcgatt tatctgcttt cacacatttc cacgttcaag tgaaaagaat caaaggacgg      540
ttcttcgata taccctctcg cttatatcgc tcatcgaatc gtgatatctc gaagacacat      600
tcctncaccg acatattcga cg                                     622

```

(2) INFORMATION FOR SEQ ID NO:614

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 464 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...464

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:614

```

gtaatagtgg ggcgcattcg gcaggatttg gctaattcca gcgggtttggg ttttggtgcg      60
tatcggaatca gatccggaaa ggggctgcac tcaacgcttt cagatagccg aatatctcat      120
cgccaaaagga catttcgctc gctgacacgg tatcgctttg cgacatagcc tgaaaaggat      180
aaactccgaa agccaattta accctcctgc ttctgggggt tgcttttgtc gtattataat      240
gttctttcca ataagaatcg atctaaaaaa gatattgctg tccggtaaaa aatgagattc      300
tatcttgaat ttcttaactg cccaagtttt accgatagca atagaaaaag agaccattgc      360
acaataactc ttctatccct tcatattgat cagacagaca caagcattga ttcgacgaaa      420
gtaaggagtg cttcatgcag ttttgcaaac cctcaagtat ggga                                     464

```

(2) INFORMATION FOR SEQ ID NO:615

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 847 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...847

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:615

ggttgttctc	ctgtatccaa	ttcttcgtca	aaaactttga	aagcctcaga	catcctccga	60
gattatagat	gagaatggga	taaaaactta	cgaactctcg	tgcggaactg	cagctcatag	120
tagtgtagta	aaagcaagaa	gtcttgtag	ggctaacacg	ttgccaatag	gagataaaaag	180
aagtggggcc	ttgagaaaaa	aagaatctgt	cggtagagat	atgtactgaa	atagagtgtg	240
acagtgtgag	gatagccatc	aaaagccctt	attaatcggg	atagtccagg	tcttttaggtc	300
ttataagatt	tattaattca	ttggagagaa	tcagatatag	cacgtattga	agtcgcgcttg	360
acttttttca	aaatctccta	tctcataata	tgaactcctc	taccattata	cccaaggatg	420
tatttatcgt	ctaatttctat	tcctgagaat	agtctttaat	cgctttttta	taccatcctt	480
tcttagaata	gcatttcctc	taccatgata	cgcaggggcg	tatttatcgt	ctaatttctat	540
gcctgagaat	agtctttaat	cgcttcttca	tatgatcctt	tctcaciaat	gcatttcctc	600
taccataata	cgcaggggcg	aatttaccgt	ctaattcatt	gcctgagaat	agtctttaat	660
cgctttttta	taccatcctt	tcttagatat	gcatttcctc	taccatgata	cgcaggggcg	720
tatttatcgt	ctaatttctat	gccttagaat	agtctttaat	cgcttcttca	tacgatcctt	780
tctccaatat	gcaactccta	taccattata	cccaagggtg	atttatcggc	taattctattg	840
cctggag						847

(2) INFORMATION FOR SEQ ID NO:616

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 569 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...569

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:616

gcgaattatt	acaacgtcca	agttgttcgt	acgtgcagcc	acaacagcct	gaggtataata	60
gtagtagcat	cgggattctt	tatcccatc	aggatctctg	tgctcggttg	tagtcgcgat	120
tgaggatatt	ggccacggca	gcattgtgct	ctcgggtctta	ccgaaagccg	ctacagcctg	180
ggcataattg	ccctctgcag	atagagcaaa	ccaagagctt	cgcccaattc	gggcacattg	240
gcagcgcagcc	gaaatactgc	ttagcctgct	ctacattacc	ctcggttaaga	gccatagtcc	300
aaggtttcata	tcccgtttct	gcattgggct	tcacgcttgc	agcttttgga	accaagtccg	360
agcacccctcc	aaatcacccgc	tgcgataacg	cacataccga	tattggtata	agcacgatag	420
tcattccggat	agatctgagt	accaccttgc	aaatatcttc	cttttgagca	ggagattcga	480
gcagagtaca	tatagagcag	ctcttcacgt	cagccggccg	ggtctggctg	cagacgttgc	540
ctgtatcgtc	taccttagatt	cgacattgg				569

(2) INFORMATION FOR SEQ ID NO:617

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 608 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...608

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:617

cgacaacagc	cgactgcaca	tcacctatat	gaacgtcgcc	gtaccgtttt	gatgaagaag	60
tgccgcagct	ccttttctct	ctatgccgct	ccggtgctaa	ggtcaagacg	gcttccagct	120
ctaaggtgtg	ggtgccggac	aacaagatca	ccagaaacac	ggtcgcgacg	tgaacctgaa	180
tcctatcgtc	ctcgaaactcg	tgctcggtatc	aattacagtg	ctttcaatct	ctatggttct	240
tataccttac	gccccgtgttc	cgcagtgga	aaggacctga	tacacgcatg	ttcgcatcgg	300
cttcggcttt	ggtttctaaa	aacgaaaaag	caatgaaacg	ttttttttga	ccaccgctat	360
actgctgtcc	tccgtgcttg	cctcttacgc	cgcagccttc	cttcggccgt	tcgcgatacg	420
gtgatctgtg	ccggggagaa	accattatga	tcaaggatgg	tgaggaccaa	tttcgaggta	480
attatacagg	gtccatgcct	tccggagata	cgatccgaaa	cgaaaagata	ttcagagggt	540
ctatcgcaat	ggtcgcagca	tcgaacaacg	ctttcggaat	actttgataa	tcggccgaca	600
gggataag						608

(2) INFORMATION FOR SEQ ID NO:618

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1032 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1032

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:618

gcattccact	gtacgggatt	gtggctggct	gtgatgatga	taccgccatg	gcaccacagc	60
ccgtgacggc	catttcggta	gtgggagtcg	tgggcaaact	atatcgacca	catcgcatcc	120
cattcccatg	agagtgccga	aaacgacttc	ttgaccatga	gtccggacgg	gcgagcatcc	180
ctaccgacta	cgatacgggg	cgtttggttt	tagttaactt	tttgatgaaa	tgagcatagg	240
cagcttgaat	tgggctatgc	tgataggatt	taatccctca	tcggccatac	cgccatcgtg	300
cctcgatagc	cggagattga	tttgatcaac	gtcatgatat	tggttgatgt	agatgaatag	360
attcctaaga	ttagaggctcg	ggaggggtca	gtccgaaata	cgtattccac	ttccttgtaa	420
tatccggtca	ggcctcgcga	aagagcgatt	ccggggccgat	tcggaaaagg	acgatcaggc	480
gcacgcgagc	ttattgccaa	gcattggtcat	ggggaaagcg	actccttcgc	agacgaacaa	540
tccaggttgg	aaccggtcgt	acatttgatc	agttcgaagt	gaatatccca	tcgttgact	600
tatatatata	gcggaatacg	ctctcctgaa	aaccgccgaa	gtgagactgt	tgaagacata	660
gatggagtc	ctctcacgat	tgaacagaaa	ccttccatcc	tgacgttgat	cttggctctg	720
ttcagcacgg	gaggcctttc	cccttatcca	gtacctgcat	ataaagatcg	ttgtcgaagt	780
ggtaatgata	tcgggatcga	attcgctttg	gccctcgtgc	ccatctttga	tggaaaaccc	840
atcctattga	tgaaggattc	gatggctttg	cgttcgtcct	tctcatttct	ttgagcgatt	900
tgatgtcgct	tttcttacaa	ctgcccgaat	taaaacagcc	atacctatgg	ccaaaaccgg	960
cagcaagatc	attattatcc	tttcatcttg	atcagaaaata	ttctcctcct	ctattgcctt	1020
tccgtccggt	cc					1032

(2) INFORMATION FOR SEQ ID NO:619

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 5353 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...5353

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:619

tggacaaaga	aaccaaacag	agcctcttgg	ctcgcaactcg	aagatgatct	tcaggatatt	60
atagaggcta	tcgaggcggg	ctgcccaggg	gcttatcaga	gagctatgac	aatagtggcg	120
tgcagggtgg	cgacaccaag	cgaggaggaac	gggtgccctc	ctctgtgtgg	atgttaccga	180
agcgggtattg	gaggagccat	tcggctggga	tgcaatctcg	tcattgccc	ccatccgatt	240
cttttaaac	gctcaagcga	ttgaccggca	gctcctacgt	ggagcgatgc	gtgggctggc	300
cgtaacggcac	ggtctggtgc	tatatcggc	tcataccaat	gcgacaacgc	tcgcgaggga	360
ctgaatgcgc	tgctggccga	acgcttcggc	ttctgaatac	gcgaccgctg	gagccgctgc	420
aaggcaagct	cttagaactg	gcaccttcgt	ccccacggag	tatgccgatg	ccgtgaggca	480
ggctttgtgg	aggccgggtg	aggccgtttg	gggcattacg	attgctgttc	gttcagccag	540
ccggcacagg	gactttcaga	gctgccgagg	gtgccaatcc	ctttgtggag	cgataagcga	600
attgcaccat	gaggcggagg	agcggatcag	cctcgtatgc	cggcatacag	gcagggtact	660
gtgctgcagg	ctttgcacgc	ggctcaccgt	acgagctgcc	ggctgtcagc	ctgatcccgc	720
tgggcaacga	tcatectcgg	ccggaggcgg	aatagtgggg	gatctgcctt	cgcccataag	780
cgaggggaga	tgctgctgca	catcaaggag	gtattcggtc	tgaaggtcct	gtccattcgg	840
cttggaggga	acggccgttg	aggcggatgg	ctatatgcgg	cgtagcgggtg	ctttcatgtg	900
gcggcgtgca	gcacaggagg	gtgcagacct	ctcctgacag	gggaggcgaa	gtacaacgac	960
ttcttcgatg	caggggagca	ctgctgctgg	ttacgatcgg	tcattacgag	agcgaagagg	1020
tggtctaattg	ctattttatgc	gcataaatatc	gcagaaattc	cctacccttg	ccaccacaa	1080
tcatecggttg	caaccaatcc	ggtaaactat	ttgtagttag	ttaattggca	tcattggctaa	1140
agaaaagatc	atcgttgaga	acgaacagag	cgtagagaaa	aattggcagc	actgagcaag	1200
ctgcaaaaata	ccctctctga	aatagtaaga	tcaagactct	ccgtggcgaa	ttgccgtgtg	1260
aagtacagga	tctgaagacg	aaatcgccgg	aatgcagact	cgtttgagga	acttcacagc	1320
cggctccaagc	agctcaatca	ggctgtaacc	accgaaaagg	aaaagatcag	taagccaaga	1380
cgctgtcgga	gaaatataaa	aaacagctcg	acgaggtgcg	cacaatcgtg	agttcgacaa	1440
ttcttcctcaa	gagatcgaat	ttcaggagct	gagatccaac	tgtctgaaaa	gaagatcaag	1500
gaatacaacg	tcgaaatcca	cagcgcaaga	ccgatatagc	tactctgaaa	gaggtgctgg	1560
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cgttgtcagc	gtaatatacc	ttcgtgacag	gtgctgtcga	aagtcggatt	cacatgatcc	5040
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cgaatcacca	tggaatgaaa	aaagaaaacg	ccttatagat	tgctgacatt	agctccatt	5220
catgcggttt	gactaccggc	ggagctgcat	aagatcaccg	ataaacagga	cttgactcc	5280
accgaaagat	cgggattgct	ccgcacgcga	cgaagaacaa	aatcgatcag	atccagcgtg	5340
tggcacggag	cat					5353

(2) INFORMATION FOR SEQ ID NO:620

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 504 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...504

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:620

tatatccatg	caggatatag	ggctctttcc	caaaacaggc	aatactctcg	catcgggtcaa	60
gaatatgccg	atgtcgtgca	gcatggcagc	ttcttcgaga	agagacgata	cgcctgaagc	120
tcgggatgga	tttcgacgat	acgaagacca	aggccgccac	atcacggcta	tgctctacta	180
aaatatggta	ttggttgttc	cctcagtgtg	gtacttattg	atgatgctga	tcggatccat	240
catttgggaa	agagagttag	acgggaagtg	cccgagagcg	ggatcgaacc	ggcagaattt	300
gcatttcattg	gtgtttgaga	ccaacgcgtc	taccaattcc	gcctccgggc	aattgtcttt	360
tcgaatacgc	gcaaaggtag	aaaaataatt	catccgcaaa	tacttcttga	taaaaggagg	420
tctatgggtc	aaaaagatgg	atagtatcga	agagagaaag	tctctcttcg	atgctgcccc	480
gattgcttta	tggtctttct	attc				504

(2) INFORMATION FOR SEQ ID NO:621

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 661 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...661

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:621

gttcgttcgc	aaaccacagt	gacaggagta	caacccaagc	tatctctcgc	tttgaccaa	60
tgagcaattc	gccaagcga	tttaccatcg	tgggcttggg	ggacggttta	ttcttaaacc	120
tcaaacagag	cgttattcgc	atctcccgaa	ttggaggatg	tgtcaatgca	ccttgacagag	180
attgccaaga	tagaaaagtt	cctcatggac	tgatgcgatt	tagcgatggc	gaactatgct	240
atatcctcgt	cgcatagacc	gaacagggca	aggggaaaag	ctcccaatgg	aagaatgtgc	300
cagctctcag	agcgtctgac	cgaatataaa	tacaaaggct	caccgagcag	gtagccaagc	360
tgatctccaa	gtatagctct	gtgccaaaac	ttatcttgtc	aagtactggg	agcaggtact	420
cttttcgtgg	ctgataggta	agccgatatg	cacctcaaga	attactcgct	ctatgctcca	480
gagggaaatg	atatcaactc	actccagctt	acgacctgct	gtctacggca	cttgatttct	540
gaggatacag	aagaacttgc	attgaccctc	tgtggcaaaa	agcgcaaatc	actcgccaac	600
acttcctcga	agcgatgaca	gcctcaggac	tagatgaaag	tgtgtgacaa	tatttcgctc	660
g						661

(2) INFORMATION FOR SEQ ID NO:622

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 962 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...962

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:622

```

ggattgatgg agtggatggc aatgctgttc cactgcccaa tgtattggtg accatctgaa      60
agaccggaat gttttggggc atggtgctct gttcttttag caaatggaat agttgctacg      120
ggaaaatctc ctcaagaaat tgctgaagtg tggctgtcgg cgaagtagat cttacctctt      180
accccttctg ttctgcaatg tcattgcaga tacattggca ccgctcataa caggagggat      240
gcaaaaatag ctgccaacag aaagagaaga gaggactaca tcgagactct cggaaagggc      300
ctagacctta tctctacgtt attgttgcta ccggcaatat atagaagacg ttgttcaagc      360
acaagcagct gctcgccaag gagccgatat tatgccgtaa tacgtactac gggacagagt      420
ttgctcgact atgttcctta cgagctacga cagaaggatt cgggggtact tttgctacac      480
aagaaaactt cgtatcatgc gaaaagcctt ggatgaggtt ggagaagagg ttggtcgatt      540
atcaggctct gcaactattg ttcaggtctt tgcatgccgg aaatagccta atgggagcac      600
tcgaaggctt ggatgtaatg ctcaatgatg ctctctagga attcttttcc gagacattaa      660
tatgcaacgt actttggtgg atcaatcatg agtcgtgtta tcaatggatt tgccggcggt      720
atcatcaata ccggtaggat aactaccta ccactgctga tgccgtagaa gaagcacata      780
ccgtcttgcc tcggatttga tcaatgagca gctggtctt acagccggat tgcttcagaa      840
cagatggggc ttggacatgc atttgaaatg gatcccatgc tcagaatgga ttccttttcg      900
aattggctca agcacaatg accagagaaa tttcccaaag ctccgcttaa gtatatgcct      960
cc

```

(2) INFORMATION FOR SEQ ID NO:623

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 622 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...622

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:623

```

gaactcacgt taaagtagat tatagaaaga accagtaaac caattgtaga ctatcccggc      60
ccaactgtca acttttttca gtacacgtca aacttttcgt tttggcgcg ggcgaaaaa      120
attctcacgc cactgcgaaa aaattctgcg ccgcttttcg ggaaaacacg cgccacaatc      180
ggagcgtttc tggttctatt tccgaggctg tcagttgtag actttccgac aatgggtgtag      240
ctctactcct ccctcctaca ggctcgcca acagacaagc acgacatccc cacaattgcc      300
ctcgcatcag actgatgaga tcgtgactgt tgatgcagga acgataaaaa ggaatttttt      360
tcggattcat ttggcgcata acaaaaaaag caacctttgc agcgtcaaaa tcagaaggag      420
ctttcctttt gatgggtatt gctccgtagc tcagttggta gagcaaatga ctcttaataca      480
ttgggtcggt gttcgagcct caccgggtc acaaaccaat agcagagggc tgtgttgaat      540
agtttttttg acacggccct ttaacttttg gatcgggggt cgcctttttg aaaggatatg      600
ggaaatatct gtcaaagtc ga

```

(2) INFORMATION FOR SEQ ID NO:624

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 930 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double

- (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...930

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:624

cagtcctttc	ctggtcgggt	tcgtttcgcn	tgaacgaaga	ccgataacttg	agtttgtttt	60
ctttcatttt	tctgtcggtt	ttttctaaat	ttcctttggt	gcaaagggtac	atacgaacaa	120
gtattcntga	gcgatgcaga	aaaatgaaga	tgaggaataa	aaacctatga	cacagttggt	180
tacattcaat	tcgtaaccct	ttttgctttt	tcctgatgg	gttacgattt	ggtaacggaa	240
ctcctccgtt	tgatgctcgt	tcttgcttac	cctcaaaaata	gtaagaaaat	gctaatagata	300
ttattttcaaa	tagttacatt	ccctgcattt	ccctctgttt	ccctaattct	taatgactga	360
ttatgcccac	aagatgagct	tagattttacg	cagattgatt	tggagaggta	ctcgatcat	420
atagacaaca	aggcaagcca	cgtgccaaga	tgctcaatga	ctattaccag	aagttcgatg	480
cacagaaggg	acgcagttcg	ttttctctga	tttagggact	tataagcccg	gaggagaatc	540
aatgtctatt	cggagatcaa	acgtaagttg	gtagaagact	atcacatcca	tcgcatgaag	600
tacgctttat	ccaagagtgc	aagaacgaga	aagccaaaaa	gcaatggtgg	acgccatgaa	660
ccgtggcgac	atccgcatca	tcttcgttct	acttcgatgt	tgggaaccgg	ggtgtcaatg	720
cccagcaacg	tgccctggct	atccaccacc	ttgatacacc	tttggcgctc	ttcgatttg	780
gagcacgcaa	cgggcgttgc	cgtgccgtaa	gggcaatatg	attgccaagg	agttgcggt	840
aacaagtncg	atgtgattat	ctatgccgta	gaacgctctc	tgatagtata	agttcaattt	900
gcttcacaca	agcaagttgt	tcataaatca				930

(2) INFORMATION FOR SEQ ID NO:625

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 2631 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...2631

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:625

agttgtaaat	cccccttgag	gagctgcttg	cacgagctcc	tcaagggtgt	tataccttat	60
cctagagatg	aggacataat	tatccccggg	gttctgtaaa	attaaaggcg	atgctttcaa	120
gaatgttttg	agtatgggtc	ttggcaatcc	ccggtatcga	catcgctccg	catgaaacca	180
ccggcgaata	ctgccaaggt	gcgttcgatg	gtgctccgta	tctccacaag	gcttgcatcg	240
acaagaccct	ttccctgacc	gaaatgtgat	ggcgggaaag	ttgtttgtta	aactcgccaa	300
tagtttgctc	atgagcccca	actctgtcag	tgccgaacga	aatgactgat	ggtgctgtgg	360
tcgggagata	cctcttccat	agccccaaga	atgggaaaag	gtgattgaat	cattgatgcg	420
ctcctccaaa	gcacaatcac	taggttgtag	catgtcttcg	gaagcaacat	cttgaataag	480
agaatcacgt	ataagccggg	gcgccgatgg	cattttgtcg	cttcgtgtat	ttcttggtgt	540
cagcgtcctg	atcggacgcc	aatcgataag	cctctcaacc	tgattgagaa	gtcgttttgt	600

gctttgcgat	aacgctttga	aaggagtgcg	tctgcaatgt	tacatgctca	tcggtattct	660
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aaagtgaatt	aacttttttg	actgtcagct	tatttagttc	acatcgga	gatttgaaag	840
tcatatccat	ttagccatat	ggtaggttag	cctacagaat	aatttactta	ttaatcggta	900
ttgtggagat	gcatggctgg	ctataccttt	gcaatgtaat	agtaacacat	ttgttttagcc	960
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cgtcttgtat	agtcttaaaa	aacaaatcca	ccagcaagac	cggccttctg	gtggataaaa	1140
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tccctaccac	aatgaggatt	tactcgccga	agcaggctgt	tcggtcatca	gtttgttgaa	1260
ttcgtcogga	tgaacgtctt	ggcatcgata	tcgagctttt	ctttcaacgc	ggcagccagc	1320
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ggcatagcgt	tcgagagcat	cctgaggaac	ggcggacatg	catactgagc	aaactgattc	1440
ttggctacaa	tgatggcgaa	attcctgacc	cttgccggcg	aaccacgatg	tcgttcttct	1500
tcaccagatc	ttccttgata	catggaaagt	cagatccttg	atcatggcag	ggtactgctt	1560
ttccagtttt	catcactcca	ctccgtgtgc	gacagtttca	gccagcgctt	cagcaggcat	1620
cggggaactg	caactctcct	acctgagctt	ccaattcgcg	gcgcagtcga	tgagaaattt	1680
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gcttcgtttt	tgatatccgt	ctcccgcgga	aagcctgttt	gaagaactct	tcattcagtt	1800
cagccttttc	atgcgggaga	tactgctgat	ttcgaaagaa	aagtcacctg	tatgctctcc	1860
gaagccgact	tgtccacttt	caggagggag	gaaagtccgt	actcattatt	atgtatgcct	1920
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ttcgtccttc	atataggccg	gaagcaacag	gcttcttcca	cacagatacc	accttctttg	2040
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tctgtgggtt	ggatcgata	ataaggtaca	cgaatgctct	tgtctccact	acgtccacca	2220
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taacgataga	gtcacgaccg	actacgcggt	tgatctcctc	tgctttgaca	cccttaccgt	2400
aattttcttg	atcataccga	tcggtaccat	ccccttgccg	aatccgggga	attggcacgt	2460
tggcgatagg	tacgcagagc	tttttccact	tcgttgggcaa	atcagccttc	tcgattgcta	2520
ccgtagcaat	ggcattgacg	gcateccggt	cttgatcgat	acgttcattt	tcttctttat	2580
tatcttgag	ttattgtttt	ttggctttga	aaaaccgcgt	aaaaatgtcc	g	2631

(2) INFORMATION FOR SEQ ID NO:626

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 266 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...266

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:626

aatagctctt	tgggtttag	catattcaag	tatttataga	gacctttgcc	ggcaattggt	60
gtgtattttg	cttggttaatt	gattgtatag	tagggagtat	tttgtatatt	tgagtattaa	120
aaacagcata	atattcctcc	catggcaacc	aatccaagaa	taccgatgag	catgtaacat	180
ttgcagacgc	actccttcaa	agcgttatcg	caaagcacaa	aacgacttcc	tcaatcaggt	240
tgacagctta	tcgattggcg	tccgat				266

(2) INFORMATION FOR SEQ ID NO:627

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 593 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...593
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:627

```
ccattgcaat gccgatagaa cttgctttca gcgagcattt atatacatga tagagacttc      60
ggtccctttg taaagctctt tgacaaatga ttaaatagaaa tgaatatcta cactcagctc    120
atatattggc ctttttcgac ctgcgattat atacaaacca ttttcaatca tatataaatc    180
gaaaacactt aatgagcttg ttacacggga tttttattga actcttttgc tgcagagctg    240
attctagtgc ctttgggaaa gatcaaacct ccggtatatg gacatcgagc aaacgaaatt    300
tccccaagtt tctttcagag gtggatactt gaggttcgca gagctcacat gaagcactcc    360
ttttttcgtc aaatcaatgc ttgtgccgat agtgagaaac aagaaatgat tgtcggctga    420
ttcttgcttc ctgcacgatg cggacgcgat tgtcaactga ttcttgcttc ctgcacgatg    480
caggacgcga tgtcaactga ttcttgcttc ctgcacgatg caggacgcga ttgtcagcta    540
ttcttgcttc ctgcacgatg caggacgcga ttgtcggctg attcttgctc ctg          593
```

(2) INFORMATION FOR SEQ ID NO:628

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 467 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...467
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:628

```
ccggtgagta ccgtttcgct ggtggcatgt accatggctt ctaccatatg ccgtctttga      60
ggaactggac gccgtcgatg cttgcacccg gtatggtgtc tgctcgaacg tttcgggggtg    120
catgaagttg tatcccatct cgtcctgtag aggtactgat agggacgtcg ttctattctg    180
acctcttcga ccttgagccg ctgttcagg tcttatcgag gatacgtcct gtagccacgt     240
tcttggtttg gtgcggacga aagccggggc tttgccgggc ttgacgtgaa ggaatcgacg    300
atgaagtagt attgtccctc aatttcgaga cacatgccgt tgcaaagtct gccgttgtag    360
ccatttggtg ataatcgctt ttttaatgat gagaaagggg tagggggcgg ttctcgaaat    420
actgccgatc cttcgggata tggcaaagcc tcctgttgcg gaggcaa          467
```

(2) INFORMATION FOR SEQ ID NO:629

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 4442 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...4442
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:629

aggctcgcgc	ccctactcgt	caagcagcaa	ctgggtgggt	gcatcaaccg	aaaacatttg	60
caatgctgac	atccgcaatc	gcataaagaa	aggggatgac	aagagatcgg	cacgggcatg	120
accaaaatat	agagcagata	gccggaccgc	cccggagatc	ctcctgcagg	atttattcca	180
cgtatcggac	aaggacaaga	gttgatcgct	tcgggcatca	acaccgtttt	atacaacgaa	240
tggaagagcg	ggatctactc	ggctcgtgcc	aatggatgaa	gctaaccggc	atgctctcag	300
ctgcaatcgt	cgtgctcatg	aggtttttca	acagatagaa	tcgagtatgc	ggaggctcgc	360
aaattgggtg	cagaaaaagac	cgataccatt	gcatcatgta	tgggcaggac	tataatggga	420
cttggtacct	gcccggagag	tcagctacag	tacagccatg	ttcagagatg	cacgagtatc	480
tttcgactat	cagccggcaa	agtcagtagc	cagccgtgta	gtttcgagta	tattttcagc	540
gccatcgtca	tgccgaaatt	tggatatgta	cgatgatggg	aaacatcaga	caatggatga	600
attttctcgt	ttgaacgaac	gctaccgaca	tttcgatcca	cccaaaccgg	taagggtttac	660
atcgatcgca	agcgcgtgaa	cgagaagggg	gcaatgacta	ctgggagagc	gggctgtatc	720
gtcccgatct	tttgccaaag	acatcatcaa	gatcaccggg	cgggagctgc	tacccgagta	780
cgagcttcat	actggataga	actgaagagg	ccatgaagcg	atcatcattc	atatcggcac	840
acttctttta	ctgactgcca	tggcttttct	gaccgacctc	attggggcag	tctggatata	900
tcgcccggcc	acgtgctgca	agctctgacc	acggatcgga	aatgcaaaca	accaatgact	960
atgtcattcg	caattttccg	tgccgaaggc	tctgaccgct	ctctttgccc	gtgccggcat	1020
atccatcgcg	gtctgcaaat	gcagagtctc	ttccgcaatc	ctctggctga	cacctctatt	1080
tggggatcaa	tagcggagcc	ggtcttggag	tagccctgta	catcatgcat	tcaccatcat	1140
acccggtctc	agtctgcact	ccggcacggc	cgacactggg	gcgtagctac	ggcagcctgc	1200
atagggttcca	tgctgggtact	tctgccatct	cggctgtagc	agcgtggctc	agagatatgg	1260
tctcgggtgct	gatcttggag	tgatggtcgg	ctttttggcc	agttcgttta	tatccattct	1320
ccattctttt	ccgacaatga	aatgctcaaa	gggtatctga	tctggctctt	cgcagcgtgg	1380
ccggcacgac	atggcgacag	ctatccctga	tgatccccat	ttttcggggc	gtctcttctc	1440
gtccatgctc	atgcccaagt	atatgaatgc	ctcaacatag	gagagaacta	tgctcgtagc	1500
gtaggtatcc	acgtggagca	gagcgaatta	ttctgatcgg	catcacgagt	atcattaccg	1560
gaacgattcg	gctttttacag	gccctattgc	ctttttgggg	atagccgtac	ctcactttcg	1620
cgcatectat	tcaaaaagttc	ggactaccgc	atactgctcc	ccggcacatg	ctgtgcggtg	1680
ctctgctgat	gctcgtgtgc	gacatgatca	cgcagtagcc	ggcaaaggct	ttgtattgcc	1740
gatcaacgcc	atcacctcga	tgatggtgct	cccgtagtaa	tcatgacgat	cgctcgaac	1800
cgcaaaaagc	gttaatcttc	aactgaacag	gcgatgatcc	ataccgacaa	tgtgaccctg	1860
acggactatc	taccggatac	cgaagcaaga	aaacggagcg	catcgtatcg	agctaatega	1920
cctttccatg	cttaatggcg	aactggtaat	gctgatgggt	cgaacggctg	cggcaaatcc	1980
acgctcatgc	acaccatcgc	aggattactc	cacctatttc	ggggaatatc	accatcgag	2040
gacgcgacac	acacgggtccc	gcatgagaga	gaaagccaag	atgctcagtc	tggtactgac	2100
cgacaaatag	cagcgacgaa	tctgactggt	cgggatattg	tcgtcatcgg	acgctaccct	2160
acgtcaatta	tcggggtagc	ctgaccgcaa	aggacaagga	gattggaatg	aatcgctcat	2220
agcatgccga	ctgatgggat	tcgaatcgcg	ccaaacgggg	aattaagcga	tggagaaaaa	2280
cagcgtgtaa	tgatagcccg	cgcttagccc	aacagactcc	cgtgatgctt	cttgacgaac	2340
ctacggcaca	cccgacctgc	caagccgtct	ggagggtgatc	atcatgctgc	gcgaattggc	2400
agcaaaaacga	acaagagtat	cctcgtttct	acccacgaaa	tggatctggc	ctgcaatggg	2460
cggacacggg	atggctgatg	aacagccaag	gggagatttt	cgtggggcac	cggaggattt	2520
ggtactgaac	cactgttttg	aaaaagtatc	ggcaacgaaa	ctctttctct	caatatagac	2580
atcgggagcct	tctccgtaaa	cataaaacgg	ctacacctgt	ttctgtagaa	ggacaggggtg	2640
ctgcctcaaa	tggacactga	gtgcttttgc	ccggaatggc	tatgtggaat	ctgcaatgcc	2700
tccgaccgca	aaatcacctg	gggagagggc	tgctggattc	tgcagagggc	gattcctcga	2760
aaagcttcga	ctccatcggc	tccttgctac	aaagctgcac	gctcaccacg	aatgaatgct	2820

tgtgaaacaa	acaattatat	gcaaacccta	cgatagattt	cgacaaagaa	acgcctctgt	2880
tttttagtcc	ttgggcgatc	ctctttacca	cttgaaagaa	agtatgatcg	ttcgcttcgc	2940
ggacgcagag	gagtcgtgag	cacctgcaat	ctcaacggcg	gctaccgaga	gacctccgct	3000
acgccttcaa	caacagttgc	gggagggacc	ccgacgtata	gccaaacgct	ctgtagggat	3060
gcgaggaaaag	accatgatcg	aacactagcc	gccttagcgg	aagaattggg	tctgcctctt	3120
gacaaaacaa	cgggcagggg	accgctgctc	tgatcgaaaa	tacggcgacc	tcctctcgcc	3180
aatacacgga	gtaacggtca	tggcggttgc	cacggcaggt	atagatgtaa	atggggacgc	3240
gcaggagaac	ctgccgcata	caacgaattt	acccaaacag	accgattaag	ccgggtacca	3300
tcaacgtatt	cctgttcac	gacgcctcat	tgatgcagga	acactgacac	gcgcctcgt	3360
caccgccacc	gaagcgaaat	cgcagccctg	caggaaactga	tggcaaacag	catgtattca	3420
gaagatttgg	caccggttcg	ggaactgatt	ctctgatngc	catctgtaat	aaggagtoga	3480
gatagtgtct	cagaatagt	gcaaacacgt	gcttttgggc	gaaatgatgg	ccaaagcgtg	3540
aaagaggcta	ttacggaagc	cttatcccga	cagacaagat	gacccctaca	cgtcaggcct	3600
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cgctgtatc	cacattgaaa	aaagagggtg	tagaagcagg	aatcggcggt	atcgatcgag	3720
acaacgtctg	gtagccgcag	tggctgccat	tgctcattta	tgcgaccaa	atcctggcaa	3780
atcatctcgg	acaagagcat	gacctgcaca	gccgaaaaca	tatgcatacg	atactttcgg	3840
agagaggtat	ctccgaggag	gcaaacagaa	agacattgta	tgcggacaag	atgcgcggcg	3900
atatcgtcaa	gtgctgtccc	ctgcctccat	actcttgcaa	gaataactcca	caacagaatt	3960
attcattcac	actttaacat	atcaataatt	atgaaaaagt	ttttcttcgc	gctactatga	4020
ttggtatttc	agcgcaggct	tttgccaaga	cggacaacgt	cccagacaatt	cgctacgagt	4080
acacaatctt	cagaccgtca	cggtctattc	tacacgacgg	ccgtacctct	gaaaaagata	4140
ccggccaaga	tggaactcat	ctcatgcgca	acatcaagca	gtccggcctt	aacaacatga	4200
ccgacatcct	taagcgcaaa	gttcgctcga	tgctatacaa	taccggggct	ttagttcgaa	4260
catggtatcc	gcggtttcaa	gccctccggc	aagtatgtaa	ccgtattggt	aacggcatcc	4320
ctgcgggaac	ggacaatatc	tctacgctca	acacgagcaa	ctcgaacaaa	tcgagatcct	4380
caaaggcccc	ttctcttcca	tctacggcac	aatgccatgg	gcggtgtggt	gaacattcat	4440
ca						4442

(2) INFORMATION FOR SEQ ID NO:630

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 574 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...574

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:630

cgtaacggct	catgacttat	ccacacgacc	ggccgatatc	acaagtttgc	cttgccctgta	60
agaacggaat	gcgacgtatt	ggagattttcc	actttgataa	agggtaagta	acgccgtcga	120
tctcgatcgt	ctcctttgcc	tccatcgaga	gcgtgtgata	aagatgtctt	cgttggacat	180
atcctttaa	accaccgacg	ataattttcg	ggatgaatac	cttttttcat	tgctgtctat	240
ttagtttgtt	cttggttttcg	ttcgctattg	acgtactctg	gattggtaac	cgttgtttat	300
aatcggatag	agattttccgg	acggcaaagg	tagggatatt	atttacttgg	caagcagtta	360
ggccgagtc	aaaatgagtt	cgatcattca	tgcggacatt	catgctctta	agataagcag	420
gaggggacgc	atgctcgtgt	agtcgatgaa	tcgtgtgtcg	gatttacgaa	ccgcaatcgt	480
tgtaattgtg	cgcgagaatt	ttgaaaaagt	ggaacgtaaa	ttatttcggt	ttggttcgaa	540
ttttttttgt	tcccgaacca	aaataaaaaa	attc			574

(2) INFORMATION FOR SEQ ID NO:631

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 796 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...796

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:631

ggcagatgat	gatacacggc	aagcgcaaac	aggctgcggt	ggagaccatg	aggagaccgg	60
ttggccggtg	ctattcagtg	ctctcaccac	ttttgttggt	tgctttcttt	tctggctatt	120
cccgctcgta	cgatgcactt	tatcggttcg	ccacttctgc	cagtgtcttc	ttctccttta	180
tgatcgccat	tacggtatgc	cgactacctt	gagtttcggc	aaagaccatc	agccgaaagc	240
atcaggcgaa	aagaaggaaa	gcacggctg	gatcgatggc	tcgaagcctt	cggctctggg	300
tgttggatca	tgagaagtct	gtctgggggtg	cttttatcct	tatacagtgg	tgatgctctt	360
tggattcttg	aaaatggaga	cggcattcga	catgaaagaa	caatggggcg	acggatagaa	420
tacgtcagca	atctccttgc	ctgagcgaaa	gcgaattggg	ctctctttat	tcctatgata	480
ttatgatcga	ttgggagagg	agggaaaaggc	caagaccccc	gaagcacttc	gtgctctcgc	540
agcatcgctc	gccatgcaga	ggcatattcc	cttaccaagc	gtaccactcg	atattgaata	600
tcctcaagga	tctgaaccag	accttgacag	atggggacag	gcatactata	gcattcccgg	660
cgatgcggag	gaaagtggca	ccagcactcc	tcctatatga	gaatgcnggg	ggggagtga	720
gcccgaagc	tggatgactt	acgaatacca	gaccggttgc	taccctgaaa	gttgggaaaa	780
tgacctcttt	accaat					796

(2) INFORMATION FOR SEQ ID NO:632

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 393 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...393

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:632

gccgccgatg	cattaagagc	agaagccaag	gcttccgtac	tgattacaca	tcagcgattt	60
tgagatccgg	aagatttatt	ttcttccctt	ttactttgct	tcgaaggtta	agaagagttc	120
actcttgctc	atggccggct	tataaggaaa	gagaatacga	gctgctgatt	gccaccattg	180
tcatagctga	ctacacctca	ttgccaagta	ctttttctcc	ctgaaaaagg	aatgaaggtc	240
cccatattca	cctgtagcat	agcgacgac	aggcttcact	gtaagttcgg	ctttttattg	300
aaccatttgg	caggaaaagc	gatactcacg	gtcacaggca	cttgcttccc	acgacttcag	360
tggttggtgc	tcagccttta	ccaaatcggc	agc			393

(2) INFORMATION FOR SEQ ID NO:633

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 289 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...289

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:633

tgacaatccc	tcattttttc	aaaggtctct	atatcngttt	tactcgtcgc	gttcgattgt	60
tttctttccg	gccggggaaa	gtttccccga	cagccgacaa	aataattttt	ccggccggaa	120
aatctctatc	caaagggttc	ggatatgata	caaagccttt	gaatacatat	ccgaaagctt	180
cgtttatata	tccgaacctt	tgaataaaga	attggattat	ggcttttnca	acttttccgt	240
actgcgaaaa	aacttttttc	ggccgggnac	gattatttct	ttttataaa		289

(2) INFORMATION FOR SEQ ID NO:634

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 956 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...956

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:634

acgatcggca	gagagaccag	cccgaacgaag	aggatgggca	tcaggatcgc	atcacgagga	60
aggatttctt	tcggacgcga	atcatgtatt	cgcgttggtg	atagtgttaa	tggtgttcac	120
aacgtcagtg	tgtatcggtg	gtttcttttg	tgcttggtac	ggattctctt	cctctacgcc	180
gtggcctacg	gtcttggtga	tatgtcgtgc	atgctcggga	tctcttcgta	gaaggacacg	240
agccgaccga	ctcgggcagg	tcgcgcacga	gatcgcgggt	gtgcgccgtg	gttttttgcg	300
cactctcagc	ttcgtcatgg	aaccgcgtag	ctccgtcttc	tccgtatccg	gateccggccg	360
aggtagtctg	ccggcagctc	gccttcgact	acatgcggat	aatgccgagg	ctgttctccc	420
tacgcacttc	gcgcacggct	cgtggagcac	tacgcgcgat	ttgttgatca	gtgcgaagtc	480
gtcgcatact	cttccaccga	ctgcatgttg	tgctcgcaga	agatgacggg	acgctccttc	540
cggccagctc	cagtatttca	cgcttcagca	ggtcggcatt	gaccggatga	atccgctgaa	600
gggttcgctg	aatatgagca	attccgggtc	gtgaatgcgg	tgacacagaa	ctgcaccttc	660
tgctgcatcc	ctttggacag	ctcttcactt	ttttgttcca	ccaaggcatg	atgtcgaact	720
tctcgaacca	gtcgggagcc	gcttgccgcg	ttcgtgcttg	ttcactccct	taagttgcgc	780
tagaagatgg	cctgctcgcc	cactttcatc	ttggggatca	gcccccgctc	ttcggcaggt	840
agccgatgcg	gcgaatgtct	tccgcctgca	tgggatggcc	gtgaagatca	cttctccttc	900

gtccggggagc agtaatgcgg ttgatgatac gatcagactg gttttgcccg gcttcc

956

(2) INFORMATION FOR SEQ ID NO:635

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1539 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1539

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:635

```

ctttggggaa agaaagaggt aggaaaacgg ctatcaggtg atcaggaaaa agccaagcgt      60
ttgcttcctt cttacctctt tatggggacg gtggcattct gcctaaagtc ctactgagtg      120
cctacacata ccacccgatg aggcctcttt ttcggatatg tcagcagctt tctttttccg      180
gcaacgaatg ctattccttt ctgtggtttt tgccctgctt gttcagtcta ttttgccctgg      240
ttgtttttat cctcgggaagt ggatggaggg accgaagatt ttcggagctt acctatcgcc      300
tgccttctgc atatagtcac cgaatacatc cctgtggcat tcgggatgat cctttctgta      360
ttatagcagc ctttaacaat tttcactact tcttctgggt atgatgttat accgctattc      420
cgatcgtata gtttccagac ggtatcggtg gccctgctta tcgctttcca tgtggcactt      480
ttctcccggt ctttatgccc gagcagtcac cgctcttggg ggtattgaac tggctcttata      540
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```

(2) INFORMATION FOR SEQ ID NO:636

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 7032 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...7032

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:636

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tatggcctgc	ga					7032

(2) INFORMATION FOR SEQ ID NO:637

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 590 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...590
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:637

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(2) INFORMATION FOR SEQ ID NO:638

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 310 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...310
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:638

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(2) INFORMATION FOR SEQ ID NO:639

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 2335 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2335

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:639

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ggagaggaat accgcgaata caaggccaaa ctctcgttta tttcttggtc ttttagctgc     2040
tgaatagaag atgagacttt caagaagttc ataagcaatt gccgcagacc tgaaaacaat     2100
ttctgggaaa aatgatgctt gcggggatga actacggcca taataaaatg gctctcgggtg     2160
catcgacgaa tgtatccgac cgtccgggtg ggaggatatt ctgcaatcgg ttgcggcggc     2220
gggcaaaaaca tcgccaactt tctgacaagg acgaaggaaa agtatgcgga gcggactact     2280
cggcgacagag cgtggc aaa tcttgccag gaacaggaaa gctgtccgag acggc      2335

```

(2) INFORMATION FOR SEQ ID NO:640

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1010 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1010

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:640

```

gggcgggtgg ctatccgtct cctacaacct cgcggcggat tattcctggt ggaaacggga      60
gccaacgctc atcgccggtt gcccgaatac cggcatacgc ccgtctgacc ttgctgccga      120
tcccccgctc gtcgctgcgc atggcagcga atataacgcc acgactctgg agccggggca      180
tgtacatgag gatgtttttt cgactgcgaa gcacgctaca gtttcgataa ggtttgggaa      240
gtatcgtttc gatgcgcaat ctgttcgata gtcgcatgta tcttatccgt caacgacgga      300
gtacaacgct ttttccaccg ctatcccatc tcgcgggtcgc gaatgcttgc cacagtcttt      360
ttccgctact gattttcttt attcgggtata gcgcgagga tcgtattgag attctttctg      420
aatctcggtc cgatttttct ttcggcgagt aatttcgtcg acgaaattac tcgctgcagc      480
tatgcaaggc aaatcttggc aacaaaattc atagaatccg acctgcaaac atgaatttcg      540
caacaaaatc gcttcctgca agctgcaaac atgaatttcg gcaacaaatc gcttcctgca      600
agctgcaata agcaattttg ttgccaagca gacctttgca agcttgcagc aaggaatttc      660
gtcgacaaaa ttacacaatg cataccgcgg caaggaattt cggcaacaaa atcatcaaat      720
gcatatttca gccaaaattt cgatagagaa atttcaaata catgctttcg gcaatcaatc      780
tttgacataa aatttccatt gccgaacggc gataagaaac tttgccaccg aagtgatatg      840
tattccccctt aatctttatt ccaatatata tgattggcag gaaatagttt catccactaa      900
attacaataa tcgtatgact gctttcggat aagcttaaga caagaaatat ataattctat      960
cggttttcta tccacaacaa attatttact acttttatcg aagcaaacga      1010

```

(2) INFORMATION FOR SEQ ID NO:641

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 540 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...540

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:641

```

caggagacca gcgtaggcct acggtgctca ttacaacatg ctaattatcg tgcattatgg      60
ccaattaaag taaaacgaga acgaccttag aaattttcct gttttgcgtc ttcaaaattc      120
gtttccccc ttgtttggga agttcagctc aatagcagat cgacgacctc gactcccctt      180
gtcgtatttg aagcatattt cttataatag aaagaagaca cgtgaagatg gtgatgatgt      240
cattttcagt acacatcgct tttctttatc tttgtagagc atggtttcga atttggaccg      300
gcttttgaaa tcagataact ctaagaaacg tttcaaagaa ctagttattc gaatcgatta      360
ccccgtgca atggtggctg atagcaggta tctgctcttt gtttttgaga tttttacccc      420
gggtttcttc ttggcttgat cgtatgggag cttttgctgc cattataccg gcggccttgg      480
ggttgtctat gtgtggcana ccggtttttt atcgtggcct cgctgctctc gctcttcctc      540

```

(2) INFORMATION FOR SEQ ID NO:642

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 896 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...896

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:642

gattaagaac	caagatgaaa	aaagtatttc	aagatcttcc	tttgggggtgt	gttggccggt	60
gcagtgatcg	gcacttttat	gttcctctgg	caaaagtcaa	agccaaaccc	aaagagtacc	120
aaatcgaaac	ggtaaccaag	caagacagat	cgagagcaag	acggtgatca	cgggtacggt	180
agagccgcgc	gacgaatgct	catcaaacca	cagatgaacg	gcacgtagc	cgaactgctg	240
cacgagccgg	agacgtggta	cagagcggag	acgtgatcgc	ccgcctcact	gtcgtccgga	300
aatgatccag	cttagtcagg	ccgagagccg	tgtccgtatg	gcgagatttc	atacgagcaa	360
ggcaaagaat	cgtatgcccg	cagcaaagat	ctttcgacaa	atcgggtcatc	gctctcgaag	420
agttcgaggc	agccgaggca	atttcgccaa	aatcaaagag	gaactgtcca	atgcgcgtga	480
agccatggag	tcgtaaaaga	aggtgccagc	agccgtacag	ccaaacagag	caatacgctg	540
tgcgcagcac	ggtaacaggt	aagatcctga	atgtcccggg	caaagtggta	attcgggtcat	600
tcaggccaat	acgttcaacg	agggaaacgac	catcgctcga	tagcggatat	gaacgatttg	660
atthttgtcg	gcaagataga	cgagacgaag	tcggtcgcac	tcgactgggc	tctcccatgc	720
gcatttcggt	gggagattgg	ggaaagaaa	ttttcctgcc	acagtagaat	accttgccgc	780
caaggaagta	tcagtaaacg	gagctgtact	gttcgaagtg	aaagcttcgg	tactattcca	840
agcgacagag	taatccgtgc	cggctatagt	gccaatgctg	aaatcgtact	cgaagg	896

(2) INFORMATION FOR SEQ ID NO:643

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 4002 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...4002

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:643

gccaaaggat	gggcccgcgc	tattctcttc	aatgagcaag	cgaaagccag	ctggatcggt	60
tcttcgcacg	acccgatacg	ctcagcctcg	gtatctgcac	ggctgccagc	tgatggccga	120
gttggaaactt	ctataccccc	aacacgactc	aagcacaagc	ttgtccacaa	cgaatcgcat	180
aaattcgaaa	gcacatcgtc	actctcgaaa	tcccgcataa	cgactccatc	atgctcggca	240
atctgcccga	agcaagatcg	gtgtatgggt	tgctcatggc	gagggtcggt	tcagctcccg	300
tacgaggaga	aagcctacca	tgtgggtggc	aagtacgaat	acgcggctat	cctgccaatc	360
ccaacggatc	gccacaccgc	atagccggat	tggcagcgcg	gatggccgcc	atctgacgat	420
gatgccacat	ccggagcggc	gatattcccc	tggcagtgcg	gttattatcc	cgaatcacia	480
cgacacgaac	tcagggtgaca	ccttggtatgc	aggctttccg	caacgcttac	gagtggatag	540

caagcaggtg	aaaaatggat	gatacgtcgc	cccaactgac	agaggagcac	tgccttttcg	600
catcgcactc	acgcattgtaa	aagggcgtgg	tagcgtgtgg	caaggcagct	gcttttcggc	660
atgggcagtc	ccgaagccat	cttttcgaca	ggaaggagct	ggtacagagg	ctaccgaaag	720
cacctcgccg	cctgcccgat	ccatcttttc	tccttcgggc	atggaggaaag	cacgcccga	780
gttgatcaag	ccctcaaagc	cgggtctgaat	atgtatttca	tcaccgatga	taatatcctt	840
accgcttgaa	agaatgtgtc	gacgccccca	tcctttctta	ttcaaaggca	atgtcgatct	900
ctcgccacgt	aggggtgctga	gcattgtagg	tcgcgcgaata	tcacggccta	cggacgtaca	960
gccacggagc	gaatcgtatc	ggattggctg	aaaccatccc	cgatttgctt	atcgctcagc	1020
gactggcgtc	ggcgctcgat	tcgcagctca	taaggccgct	ttggacaatg	gcttgcccct	1080
gtagctgtat	tggtcccatg	attggacagg	atttatccga	gcgggtcacgt	tcatttgcta	1140
tggagatgct	ccgaaacgga	ggcttgctca	cggattccct	atggggactg	aaccggagcg	1200
attcaatttc	gtcggtcgca	atcgctcgta	gcaggcttgt	cggacgccac	acttgatgat	1260
gaatcgccg	aaaaggaggc	tcctcatca	ctgcccgaact	ggcattcggc	tacaatcgcg	1320
aagactggct	ctaccgggac	gagccacgga	tagccgttcg	gccggctgca	atccttgata	1380
agggatcaaa	aagccgcgct	tgtcagctcg	gtcaagatg	tctgacgctg	ctcgattgga	1440
gttctaccat	agacgccaaa	cctcagacat	gaatttccgt	cccgatagtt	ggccggatac	1500
ccccgtagcc	gaatgtcttt	cagagcaggc	acagcctcgg	tggacgagct	gacacgcgct	1560
accggactcc	tataaacgat	gtttctgctc	agcttttcga	cctcgaattg	gacggacggt	1620
acagtctcag	cccgggtggc	tatactccgt	tatataaatt	gtacgagaag	atgtctccca	1680
ccttgctccat	actcataccc	gtttataaaa	gggatgtcgc	agactgctgg	aggaactgta	1740
taagcaggcc	gaagaactat	ccgtggctac	gaaatcattc	ttggagacga	ctgttcgggc	1800
gaaccttaca	ctttcaatat	atcgcttacg	aacaggaggg	actgtgccga	cttgctcagt	1860
ccaagagaa	atgggagccg	gccgtctcgc	caatcgctta	gcagaagaag	ccaaggcgag	1920
cagctcctta	tcctcgactc	cgataccctg	ccggcatcac	cgacttcata	gaacgctatc	1980
tgcgactatg	ctccggcaca	acagtcgtag	tggagggttc	gtctacccgc	ccaaatcgac	2040
caatccccct	cggcaacgta	tggcgccgaa	gtggaaagtc	gatcggcgga	agagcgagca	2100
cgaaaaccca	ctccggattc	atctcaatgg	ctttcatgat	cccaagaaaa	cagatgttgc	2160
caccggcttc	cctcccaata	tgggtatggg	gtatgaagac	atcctttcgg	cgagcgtctg	2220
cgacaagccg	gcatacccat	cctacatatc	gataccctgt	agaacattac	cactgcgata	2280
ctgcccaggg	atttttggcc	actcgcgtag	ctatctggac	aatctctatt	gtcaccgcga	2340
agaattagcc	gttggttaag	cctgctcaga	gcatacaatt	tgctgaaacg	gctacacctt	2400
agcgaatggt	agctgctttg	tggccactga	tcgcatcctc	attggaaaag	agctcacggg	2460
agctaagccc	tctctcctcc	tcttcagcct	gtataagctc	tatacgtagc	ctccctctct	2520
ttggtgtgtg	ctgaaaaaag	ctgatccctag	aaagatcaga	aaaagcaata	attatatcga	2580
aatgtttgac	ctcctctcga	gtgtcaactt	tttttcagta	cacgtcagtt	cgtaaaaaat	2640
gcggttagcg	tttggaaaaa	cgtggctcgg	gaattttttc	gttttggttc	ggaaataaaa	2700
attttacgcg	ccacaacgga	aaaattctcg	ctcgcgaaat	tcagaaacac	gaactgctgt	2760
ccggtaaaa	ttgggcagtc	aggaaaattcg	agaaaaatct	tcctttcttt	gccattactg	2820
ttctataaag	tgctattacg	aagggaacac	agcctaacca	catataaatg	gcagtaaacg	2880
aaactccatt	atacagtatg	ttttgaagaa	tcttcatttt	tttaccggac	ggcaacaaaa	2940
acacttatct	ttgtaacata	gataatcact	ctctttaaga	gagaaatagt	ccttatggat	3000
aggataggct	taaaaacgaa	ggttcattga	gtcggaggat	gacgggagga	ctgtggaacg	3060
agctttttgt	aagacgatgc	cgaaatggtt	tggaaagtga	tttatgttga	actcaaagaa	3120
gttgaagaaa	gatggcaatg	tttaagtatt	actcccatat	atattgaaat	gggaagggtg	3180
ttttgccatg	atcctgccga	tgacggaggg	gcaacaaaca	aagggtgtaac	aatacgactt	3240
ggaaaagagt	cggctatgac	aaagacggcg	atggagacat	cgagttgagg	atctcaagtt	3300
gctaaccgat	gatgacgtcc	tgaatcgagt	ctgaaaccat	tttattggga	tcggttgaaa	3360
gctgacttaa	tcgagtctca	aagggtggct	atatccttgt	cgattgggtt	tggggttcag	3420
gcaagtatgg	attgttattc	ctcaaaggat	actagggtgt	caggctgatg	gaatagtggc	3480
aataagacct	tacaggctgt	caatagtgca	gatcccgatg	agctgtttag	tccatcttcg	3540
atgcacgtcg	cgagttctta	gaggacatta	cagcaagagc	ataaaaaagt	acgaggatag	3600
catcggacgc	aaggccaccg	aacgcgattg	ctaaggcata	ccaacanacg	tttcttgaga	3660
ggttggttga	accgtttgaa	gatattagga	agctctaaag	ataaaagcct	gcaggttcgt	3720
acccgtcaac	gaatatctcc	atctgtcgat	ctcggttggg	ataaaagcct	tctggaaatc	3780
ctaagccggc	cgaatgggtt	gtgtcataat	tcgatttatg	gctagctcgt	tttcagaagc	3840
cgatatcag	caggccggcg	agaccggcaa	gagtatcgtg	aggatgggat	ggagccactt	3900
cttgacgggt	acaaggaagg	tagcaggaac	aggaggatgc	tccaaaggtc	ggtgaagttc	3960
tctcgtacgc	tacctgatcg	aggcttgccc	agccggtggc	ga		4002

(2) INFORMATION FOR SEQ ID NO:644

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 601 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...601

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:644

```

gtcgtatccg aacaattggt cggagccggt ttcaatgaga tactcaacat tcgcttacgg      60
ccggttctta ttacgaaggt cttagagacc atccgagaag atggcagtgg agctgatgaa      120
tccgctgagt caggagctta actgcatagg cagactctgc tattcggagg attggagacg      180
ctcagccaca acctcctcgt aagcatctct ccctctatct ctttgaatgg ggtaaatgct      240
atcgctccat gccgcaaagc gcacggacga gactccccct gcggcctatg cagagacgat      300
cgctcggca tttggatatg cggacaacgg gtgcacaata gctggcacac cccgaagaac      360
cgacttcggt atttgaactg aaagctgtgg taaacaggta ctttgccgcg tagggatcga      420
aaccggagct tatacgtctg aacagctgac aatgatctgt acgcatctgc catggaggtc      480
aagactcgtt gggcaaacct ttgggtacat tcggaacggg atcaacggaa ctgatcaaag      540
cttcgaaatn gagcaaccgg ttactttgcc gaatgctttg ggatgcccc a tgagcgaatc      600
g                                                                                   601

```

(2) INFORMATION FOR SEQ ID NO:645

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 303 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...303

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:645

```

aaaagaaaca aaaagatatg tcccatttgc caatccatag aagttcgcac tcaccgattt      60
tggagtctat ctgaagacaa ttgtatctaa aacatctgat cttcagacag atatgccttt      120
tctcataccg acgactatta tttcttcgct tcatagaggg ggggcaatgt cgtctgaata      180
ttgatttcaa ggaatgactt ttcgaaaagg atagtctggt tatcattcgt ccgggacagg      240
tacatgcac attgatgctt acaatctttc ggcaaacctt cttattattg actctattgg      300
taa                                                                                   303

```

(2) INFORMATION FOR SEQ ID NO:646

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 507 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...507

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:646

gcaatttggga	caaatacacgc	atgaaaaacc	gttaacagcc	attatttcat	cagttacgag	60
tgcaagagca	aaaattgaca	attttcacct	gaaaatgttg	tctgaagagt	gtttcaaaaa	120
attacaaaaa	tgtttttcag	acgagaccga	acagccgaat	acgtgaagca	ggggattatt	180
tgattacctt	tgaacacaga	aacttagctt	tgacaatata	tgattacagc	cgaacgttat	240
cacgaattag	catgggacac	cgcgtagtgg	ggcacgatca	caagtgcaga	catcgcatgg	300
acacaactat	cgtatccact	ttatttgcag	tgacccggct	cttattcgat	cgggcgtgta	360
gtcgatttcg	gtgttatcaa	agagttgcta	tgacgtggct	tgaagatcat	tgggatcaca	420
agatgatgct	atgggagcag	gtccgttgct	tctgtcttgg	cgtgcgactg	tgccggacga	480
tctggttgca	taccgttcaa	tcccacc				507

(2) INFORMATION FOR SEQ ID NO:647

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 9159 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...9159

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:647

ctgatttatg	tattcgctca	tctatctgtc	aaaggctcgaa	aagctcctgg	ccaactcctc	60
cctatcgatg	gatacagcat	cgaaggcttc	ctgtgcatca	gtcgcaccag	atcgggatcg	120
ttcacacgct	cgcggttcac	cacggcgagg	aaccgtagt	cggcagtggc	tgatccgcca	180
catgaggcga	tccgaggcga	tccgtcagagc	gatggctgct	gctacggagg	ctcctcttac	240
actcccagga	tacgtcttga	gagcaagttg	cgggtagcaa	gtttccgagt	gtagaaaagga	300
aacgcccata	cacggcacgc	ctgcaactga	cataaccgaa	gaggggcgca	agtgtctcca	360
ctgctcgggc	agcttggccg	tagcaaaata	gcacgcaggc	gatcctcttc	tgctccggag	420
gtaagcccg	cgaagtactt	actaacaatt	ggccgatttc	cgcttcggtc	ggaacagctt	480
ttttgttgaa	cctattcggt	tcatcatcgt	ttgagttgga	gagccagtgc	tgtacgcagg	540
cgcgtcgggc	gcggctcaag	ttggtataaa	cggcttcgac	tttcacgcta	cgagccgggc	600
gattacctcg	ctttcgtagc	cttcgatctc	tttcagcgga	aagtcatctc	ctgcaacgga	660
ggcagtgctt	cgatagcagc	ttccacagac	gcattggtct	ggattgctcc	agtacacctt	720
gggggttagg	ggcatatcgg	agaaaggcag	atcgctccgt	agcggttcca	tccgtccttc	780
tttgggagca	tatccaaggc	tattcgccga	gcagtgggtca	cagccactgc	ttcatgctgt	840
cgatcccgcc	cagccgctct	cggttgatcc	acagacgcac	caagcctctt	gcgacacgtc	900
ggccgcagct	tctcgtcgt	cgaggatgct	aatgccactc	gtttgagtcg	aggggcaaaa	960
ggggctacgc	tatgggcgaa	gcttctactt	ccatgcttaa	gtaatcgga	caggacctcc	1020
gttgcaaagt	ctttatttac	gagacgcaga	acaaaccgga	atctgtcatc	cgatagagaa	1080
tttttttgcc	cttccccgaa	tctcatcctt	tcagcacccc	atcgacgtcc	gaagcgttac	1140
ctcatccgat	actactatta	ctctcttcgg	ataccgactc	aaaccaaaaa	gcattgacac	1200

atcggccttat	acagggatcg	gttaccgcgcg	gaatttttgg	gttcgctcgtt	cctcaaaacg	1260
tggcgcgtaa	tttttgcttc	tggtcgggaa	aatgaaaaat	tctcacgcca	caacgaaaca	1320
attctcgcgc	cattttttca	gaaaacacgc	gcgcgaatcg	gcgcattttt	ggtcgtgttt	1380
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atcggtcggg	aggagcatcg	gatattactc	ctgcagtgc	atcggctatc	ggccggctga	1620
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- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 928 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc feature
 (B) LOCATION 1...928
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:648

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ataaccgcag gattcgtgct ttggacgagt ctctcacaca gcgagccata gaagatacgc      780
gtacctcaac ttctccacca atttgagct tggcaagttc ttccccgaaa aagtcagatc      840
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atcaggacat tctcctgaaa gatgctct

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(2) INFORMATION FOR SEQ ID NO:649

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 392 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc feature
 (B) LOCATION 1...392
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:649

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gcctccatca atcattttgga agctcttttg gctgataggc attactgatg gagctgggtca      120
aaagcgaaact gctggagata aaagagaata tggcgatact cgcaaaagcg agatcatata      180
tgcttcggaa gaattcaccc cgaagacttc tatgccgacg atgatatgat catcacctt      240
tcgcaatggg ctacatcaag cgtacccctc tgagcgaatt cagaacgcag gctctggcgg      300

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gcctccatgc acgccacat tatgctgttc ca 392

```

(2) INFORMATION FOR SEQ ID NO:650

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 778 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...778

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:650

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```

(2) INFORMATION FOR SEQ ID NO:651

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 559 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...559

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:651

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gaacattttt ctctctcct anggagcggg acttctacta tgtctttact gtgaaattaa 120
aaccgggaca gcgcgatttc tttttcgggc aaattttcct ggtatgcaga ctgccatggc 180

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atctgcagaa	gattgaactt	ttaatgctaa	tgccactat	agattggtgc	ccaaatcagt	480
cagagcctat	caagttttac	ggncccggta	gaactaaggc	gagtaggtac	cacgaaccat	540
ggctttggct	attatgccg					559

(2) INFORMATION FOR SEQ ID NO:652

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 632 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...632

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:652

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gaggatatat	cactttcgta	aatataacaa	tctcagaata	tattttgttc	tggtttttca	360
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gattgtggtc	tgtgttttgt	gaaagcaggc	gcgagatttt	tttcgttttg	gtttcacttt	480
ttttcttttc	cacgccaata	gcaaaaagtt	cacgtgccac	acttttgggt	gtcataaacc	540
gaaaatttag	gcgtgtgaac	ccaatcggt	agggatgata	catcctatgc	tgaatcgga	600
gtgaatatgg	tgcaaaaaaa	gaggacagtc	gc			632

(2) INFORMATION FOR SEQ ID NO:653

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2540 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2540

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:653

tcacgaccga	agaatgccaa	aaccaaatta	aaaaccagaa	gaagattata	tcgtagttcc	60
agttaaagaa	ggcgagaaca	tcgaaagagc	actgaaacct	tcaaaagaaa	gtttgaaaaa	120
accggagcag	tacgcgaatt	gcgtgctgtc	aggcttttga	aaagccctcg	gtggccaagc	180
gcaagaagat	gcaaaagcca	tctacgtgaa	gcagcttcag	gttgccgaag	aataaagaag	240
aataatattg	ccgcagtctc	tttgcggtctc	aagaggggtg	caatgatcga	gaccatctca	300
ttcacgacaa	tgaatgaaac	acccgacacc	atcgaaagat	tccctattat	ctacgctacg	360
aagttcacgc	gtcagaacga	accgtttgtg	acatgcacaa	gatttgaatc	gctatgccgc	420
tttcttcagt	gaacacacgg	ggaagtattc	gagccaagcg	aacgcgacaa	ggatgtcgcg	480
cgcgcttggc	cttctcttta	atggaagccg	gacaaaaaag	ctcttccgtt	cagcgagat	540
gagcgcggtg	aaaagctttt	acaaatacat	ggtcaaaatc	gggcttatgg	gcaaagtcct	600
gtccgaatgc	tgaggggacc	gaagaaagag	aggccgcacc	tgttttcgtc	ccgaacaatg	660
aaatggaaaa	agtgcgtgaat	aagccctccg	tgaagatgat	ttcgaggccg	tacgggacag	720
actgattctg	gagacctgta	tgaagtgggt	ttgcggcggt	ccgaaatagc	cactctcaaa	780
gacacgcggt	agaagacaag	gccggctgca	tacgtatcat	cggcaaaagg	aataagagcg	840
aatagtacct	ttcggaaaaac	gtctgcaaga	tatgatagac	aatatcgga	tattcgtgaa	900
gaaaaaagtag	ggaaatctga	tttttttttc	gttcttttga	tggcagacca	ctgacaggtg	960
aagtgggtcta	caagatagtt	gtacggcatt	ggcaaacgta	ccgcacctga	ccaagaggag	1020
tccgcatgtc	tgagacacag	cttcgccacc	gaaatgctca	accacggagc	agatctgaat	1080
cgggtcaaaaga	acttttaggg	cacgacagcc	tttctacgac	ggtgcaaaaca	cgcatatttc	1140
gttcgaacaa	cttagacaga	tgtataacgc	tcatccaggg	caaaaaaaga	aacgaccatg	1200
acagatgtaa	gaattccaagc	tctgctttcg	atgctaccga	ccaactgaaa	gattttgtac	1260
agaagaaaaat	atccagctga	atcgcttgtc	cgatggaata	acgggagccg	aagtcgtcct	1320
caactcgta	agcctgagac	cgtacaaaac	aaagaagcat	ctatcaggct	cttatccccg	1380
gcgacgactt	gttcgcggaa	aagatagcag	acacctttga	gaagctattg	atctgacagt	1440
cgatgcactg	aaaagacaga	tcgaaaaaag	aaagaacaga	gaaaatagga	caaagaccaa	1500
aaagattcgt	cgaatgtttg	cgaattagaa	aatgtcacta	aatttgcagc	cgattcgctt	1560
ccccttaacc	gcatgaggct	aaggctgtga	ttttagcggg	aataagtcag	gcaccgggcg	1620
cgaggggagc	ttaccagagt	ggccaaatgg	ggctgactgt	aactcactgg	cttacgcctt	1680
cgggtggttcg	aatccatcac	tgcccaccct	ctctgcaaaa	cgagggaata	tcggattgcc	1740
aatgtagctc	agcggtagag	cactccttgg	taaggaagag	gtcccggggt	caagtcccgg	1800
catcggtctc	gatgtggtta	gcgttttgta	taagcacaaa	caaacaactt	aaataaaaaca	1860
aaaacttaag	gttatggcaa	aagagcattt	taacagatcg	aaacccacg	taacgttggt	1920
acgatcggac	acgtggacca	cggtaagact	accttgacgg	tgcaatcaca	actgtgttgg	1980
caaagagggg	tctttcagaa	ctccgttcat	tgattcaatt	gataacgctc	ccgaagaaaa	2040
ggaaacgtggt	atcacgataa	tacttcacac	gttgaatacc	aaacagctaa	tcgtcactac	2100
gctcacgaga	ctgtccgggt	cacgccgact	atgtgaagaa	catggttacc	ggtgctctca	2160
gatggacggt	gctataatcg	ttgtagcagc	tacagacggc	cctatcctca	gactcgcgag	2220
cacatccttt	tggctcgtca	ggtaaacgtt	cctctctggt	tgttttcatg	aacaaatgtg	2280
acatggtaga	cgatgaagag	atgtcgagct	tggtgaaatg	gacatgcgcg	aactcctttc	2340
tttctacgat	ttgatggtga	caataccctt	atcatccgtg	gttctgctct	gggcgctttg	2400
atggagagcc	tcagtgggaa	gacaaggtga	tggagcttat	ggaagctgtt	acaactgggt	2460
tcccctgcc	gagcgcgata	tcgacaaacc	gttcttgatc	cggttgaaga	cgtgttctct	2520
atcacgggtc	gtggtacggt					2540

(2) INFORMATION FOR SEQ ID NO:654

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1206 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1206

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:654

agaagtcggt	tggttttgcg	atacccttta	aagaangcgt	ctgcaatgtc	agccatcggt	60
attctggatt	ggtatgccat	ggaggatatt	atgctgttta	atactcaaat	atncaaaata	120
cctccctata	tccaatgaat	taccaaacia	aataacgcc	aatcgccgtg	caaaggtctc	180
aatggcggt	ttagcggttg	aaaaacgtgg	ctcggaatt	ttttcgtttt	ggcgcgggaa	240
gtaaaatttt	acgcgccaca	acggaaaaat	tctcgctcgt	gaatctcaga	aaaccgaacc	300
gcattccggc	caattccgga	accaaattcg	tgaggaaatc	gctacaacgt	ctgttcgacg	360
tatgcttaag	gcccacgcag	gtcaagccct	catgaaagtc	agaaacaact	caatcggtatg	420
atcagtaaga	cgcgctgctt	gtagaacgta	ccttcggtag	tattcgacga	tggttctgtg	480
gcggacgatg	cgctaccgag	ggtagccaa	gacacatacc	cggaatatcc	ttgaagctag	540
gcctacaatc	tcaagcgat	gccggggcct	cttggtgctt	aaggcgcaaa	taggcgtaaa	600
acgccggcac	ctcgagggca	attgccctcg	aggtgcggaa	aggggactaa	tccccaagct	660
gcaaaacaga	cgagaatggt	caaaaaaac	cggaacaag	cgagcagaaa	gaacagcctc	720
tttggtcaat	gggtatctt	gggattgata	gatgaggata	ttccccttat	cgctcctgtg	780
ctcctattat	ttttagttac	aggacaaatg	tagtgctttg	tgcgggcttt	ggtggtctca	840
gaatttgaga	aattcaagag	cagattccaa	tctcaaagtc	aacttttatg	aataaccgga	900
aataatacag	ctcaatccag	atcgcccata	ttatcttcca	ggtagaatcg	ggaaaaatca	960
gataggattc	tgctcctgac	ttcggaagtc	ttcccgggcc	tttttcattt	cctcgcggtg	1020
ttggttgagg	ctttttccat	ctctcgcgcg	agcttttccc	gctccttgcg	ccattcttat	1080
tttgcttttt	cttgagccttc	atatactctt	ggtagtattt	ctcctttgct	tgcgatattt	1140
tcgcatagcc	tccgagttgt	caggcttcaa	aacattcact	ccttgcgga	ataacgcgaa	1200
cggccg						1206

(2) INFORMATION FOR SEQ ID NO:655

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2732 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2732

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:655

ttccaatggt	cttcgtccc	catcatcatt	gtcgagatag	cattctatct	gcgataaacg	60
cccaacacta	tcttgcggtg	tgggtcggga	ctatgaagga	ctttccgata	gagactgaat	120
acatgactaa	cggttcatac	aacgacttaa	aatatattga	acgctgtttt	gaatgtgtaa	180
atgcctcaaa	cctgatcgac	agaaatgtcg	ttcgacaaat	gaattacctt	tgttgggtag	240
ttatagagaa	aaaggcaatg	aatccgccca	aaagactgct	tgctattcac	cgcgccttgc	300
tccttaccgt	atcgaactgc	tcaatactct	gtcggcagct	ttcatacaca	tatctacttc	360
gaatttgcat	cacctataga	acagcgattc	gagcaggcga	actagccaag	cgtgttcact	420
ttcaaagcag	tgtacttcct	ccgccccaaa	aatcccggga	ttgaaaaact	ttcgtcccta	480
tgcgcctca	tggttcgag	tcttcgtccc	gatgtcgctt	tctgtagcga	attcaatctc	540
tgacactgac	ctcactgct	gcctctcgcc	tgttcagtc	gaaaaccagc	tgtatgctt	600
atgcgatgac	aatgaacaaa	tggcagaagc	agagctgact	acggtcgtgg	cctcaaacat	660
cggtatgctt	cctatgtgga	aggcgtattc	tatgtgatag	ccgtgcctgt	gatctctatg	720
cctctcgctt	cgctagctgg	atagggagcg	attcggtttc	ctccccatcg	tacaggacga	780
aaagtgtctg	gccccctcta	tgaacaggtc	ttcggtatag	gccggggacct	gcgcatgctc	840
tcattcctgc	tgggtgctcg	atgatactgt	atgtaggacg	ctgtcagagg	aaaaaaacct	900
gccggcactg	atcgataacc	tttcactct	accgatgatg	ttcatctcgt	tattgtcggc	960
gacggcccca	tgcagtcagc	ctaataatc	aagtgcgaagc	tacaggccat	ccggaacgaa	1020
tcataattga	gggaaaaaag	aaggagcaga	gctttatgcc	tactatacgc	aggccgatgc	1080
ctcgatttac	cgagcatgcg	cgaatgtttc	ggttcggtcg	taaacgagct	ctcatagcag	1140
gcgttcctgt	ggtttgacgc	gatattgccc	gggcattttg	ctgggttacag	aaagcaacgg	1200
acgtactttc	tcccccatgc	tgcgatgct	ctctctcaag	cgtgtaatga	tctgcttgga	1260
agcatgcac	cttttgcggc	gacagccttc	gaccttctct	catgccattt	actttcgaac	1320

gagcatancc	cctgtgctat	ccctgcttag	ccgatgaaaa	ttctcctgct	gatacatncc	1380
atgcaagagg	cggagcagct	gtagctgcta	tgcgcttgat	gaaaccttac	aagaggccgg	1440
agccgaagtc	aggatgttgg	tattgaaccg	aatacgacaa	accccgacat	aatggcttta	1500
catagcggac	gatgcggcaa	cagccgataa	ataccgtttt	ttagctgaac	ggcttcataat	1560
ttacatgtca	atggtcggga	tagaagccgg	ctctttcatg	tcagtacggc	tcttatcgct	1620
atgatgtcag	ctgtcaccgc	tgggtacgct	gggcagatgt	catccactgc	actggatcaa	1680
tcagggattc	ctttcactga	gagggctgga	gcgtcgaccc	gatgcggtaa	atccgtagta	1740
tggacgatgc	acgatatgtg	gccttaacag	cgatttgcca	ccatgcccga	gagtgcctgc	1800
gataccgaac	cgatgcggtg	cttgtccgca	aatttcctcc	caaaaggaga	aggatttggc	1860
tctcttgat	ggaatagaaa	atcccagta	atatccctac	tccggcctac	gttatcggtt	1920
gtagccattg	gttggccgat	ttggcacggc	aaagcgcact	acggatggac	tgcgaatcga	1980
atcgataccg	aatcccatcg	acacgaatcc	tttgcctcgg	gttcacgttc	ggacgctcgc	2040
cgaataatgg	atgtgcccga	gacagaatat	tgcttctctt	cggagctgta	caggcggtatg	2100
atcctcgaag	ggcatatacg	aactgtcgca	agcaatgaaa	agacttcgag	agagacgccg	2160
gatttaagca	aacgaatcgc	tcttgtcgta	ttcggctctc	tccgcatgag	gtgagaagtc	2220
tttttcccaa	ttataagctt	atttcgatcg	gttaatccgt	gaaccaagcc	gaatggccga	2280
actgtaccgt	gctgcccgatc	tcttgtaatt	ccctctttag	aggagaacct	ccctaatact	2340
attatggagg	cttctctgtc	ggtacgccct	gtgtggcttt	ccgtgtcggg	ggtataccgg	2400
aatgatcgta	tcgggtagta	ccggatatct	agccgctttt	cgtgatccgt	cgatttgcca	2460
gaagggataa	ccaagaccat	tgctctacaa	gaaacctccc	cgaagctgtt	gcttcagctt	2520
gtcgtctcct	tgttctcagg	cactactccg	tgaagtagta	tctctcgtta	tgctgcagct	2580
ctaccgcgaa	ctgctctact	tgtacgaaga	aggaatagga	aaacatccaa	aacgcaagag	2640
tcttttggca	acttttcagc	agataaatat	gcagccatct	ttttggcacc	aaaacatacc	2700
tttgtatcat	aatcattatt	aagaacgagc	tc			2732

(2) INFORMATION FOR SEQ ID NO:656

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 549 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...549

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:656

gcgcgatgct	attttcagtc	gtcagcgcta	ttggggggaa	cctttccctt	ctactacaag	60
gaggggatgc	ctcacgcgct	ggatgaagat	cgactgccct	ccgattgccg	gaggtagata	120
aattcctccc	cacagaaaagc	ggtgaacgcc	ccttggaaga	gctaccggct	ggcatacagc	180
cgaagggtat	ccatacaatt	gagcacaatg	cccggatttg	ccggtagcag	tgcttactat	240
ctgcgtatat	ggatccacaa	aacgatactg	cactcgtcag	ctcgatcggc	gaataatatt	300
ggcgtcacgt	cgatctatac	atcgggtgga	cggagcacgc	cacggacacc	tgatttatag	360
ccgcttttgg	aacaaatttc	tcttcgacct	tgtatcgat	gcgaagccga	acctttccgc	420
aagctggtga	atcaggggaat	gtccaaggac	gcttcaactt	cgtctatcga	atcaagaatn	480
ccaatacat	gtcagctatg	gactgctcga	gcaatatgag	gtgactccac	ttcatgtagt	540
gtcaatatc						549

(2) INFORMATION FOR SEQ ID NO:657

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 643 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...643
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:657

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aggtttcctt gtaattggct tgccacatca agagcagaag acatcttggt ccggaagcat      60
tctccttggg tgtacgcatg aagcggttcgg tgtaaaccac tcgtagaaac gccagtctgc      120
cacaggagca acggctatcc ccgctttaat gtaccatttc cccgacacaa actcattagt      180
gtggtatagc cgccatgctc ccccccata tgccgatacg agctgcatcc acatagggca      240
gctgtctata gcagtggccg ctgctatctg atcatcgctt tcgaatacac cgagtgcagt      300
taggtacact tgcgccattc ttgcgcgcga gcaccggtgc caccatcc acacatgcca      360
cgacgtaacc tttcgatgca aggtagtgtt ccaatcgaat gaatagcgat ccaatacctg      420
ctgggagttg ggaccgctat atgtaccatc aggacaggat agtggcgaga gggatcgaaa      480
tcaataggct cagatccag gcattcagtt caagaccgga ttgagttttg atagtggtaa      540
ctccttcggg ttgtaacgat aggttttcag ccgttcacgg agagcaactt atcctccagt      600
gtacgcagct ctttggcacc tttgcttctg aataccgaac cac                                643

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(2) INFORMATION FOR SEQ ID NO:658

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 637 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...637
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:658

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ggttgccgag cagaatttgg gacagtttgc actctatctg cgaggcgaat tcccggattc      60
caccgcgtgc agttcaaccg tgtgaccggc cagccgctgt tatgagtgag atggtagaag      120
tattcacgca aatgatggag gagaaatatt atgtcagaaa cgactaagtg ccccatgtac      180
gaggcaaaag actatagagc gatcagatag tgcgttgggtg tccgggttgc ggcgaccacg      240
ctgtgtagta accctccaga aggcaatggc cgaaataggg atccctcccc atcaacggcg      300
gtaatgtccg gtatcggatg ttcttcccggt ttgccatact atagaacacc tatggcttcc      360
acaccattca cggtcgtggt gcagccatcg cgccggcgtg aagacagcca atccggagct      420
ttccgtatgg ctgcgatccg ggatggtgac agcttggcta tcggcgggcaa ccacttcatt      480
catgccgtgc caggaatatc gatatcaatg cagttctctt caataaccgt atctatgggt      540
gaccaaaggc caatactctc ctacctcagc tcgcggtatt gtatccaaag ttctccctac      600
ggtacggtag aagatccggt tatccccgca gaactgg                                637

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(2) INFORMATION FOR SEQ ID NO:659

- (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 304 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...304

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:659

tcgttcgttc	aaggggtcttc	ccaaaaataa	acagttgatc	aagtatctgg	cgaacccggc	60
atcaagagct	ccatgctgaa	gaccgaagaa	gcatacatgc	tgaaaacatg	aggaatatgc	120
atttggtcac	agacgaattg	tatttcacat	agatgaaaag	cgtaatagcg	tanagcttac	180
cgagaaaggt	atcgacttct	gacgtcccg	acagatgacc	cgaaattctt	cgtcttgctt	240
gatatgcagc	tgagttatcc	gctttggaca	atatggaatc	cgatgcataa	aaacttgcca	300
agcc						304

(2) INFORMATION FOR SEQ ID NO:660

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1024 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1024

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:660

gacaaggaca	cgaagcgctt	ctggttggtg	ccaagagggc	cgaagccaat	cgggacttgt	60
gcaagcaatt	ctattataag	acgacggcat	cgttcctacg	tgactggta	tggggacgtt	120
tcgactaccc	gatcggaac	cattaccgca	atataggacg	cgacctgaaa	gaccgcctgc	180
aaatggcggt	attccccccg	atggagatat	tggcaaaccg	gccgtaacgc	attatcaggt	240
cttgagaaac	tggcatagct	cagctggata	gaatgccgtc	tggagacagg	gcgtcccatc	300
agatcagggc	acacatgaag	cacataggcc	atacgttggt	tgcgacgagc	gttatggcgg	360
cgatcaaatc	ctgagaggaa	acaatacggc	cattaccgcc	gattcgtgca	gaactgtttg	420
gctatctgtc	cacgacaggc	ttgcatgcca	agacattagg	ctttcgccat	cctgtcacgg	480
gagtggagat	cagttcgact	ccgatatacc	tgccgatctt	accactttgc	ttgagcgttg	540
cgtacgttta	tcgcctgcat	atctgcagga	caggactata	tctgaaccat	tcggctgac	600
ctcatacaaa	tagtacaata	ctttccccta	catattaata	aacagaacga	tgaaaaaacc	660
aattgtggct	gtcattgcag	gcggttttcg	ggcgaacatt	cggtttcgct	caaaagtgt	720
gccggcattc	tgtccggctg	ggaagcgagc	ctttctccac	ctttcttggt	ctgatcgaa	780
gtgacgctgg	tcggtaagag	tatcggagca	gagagaggtt	ccactggata	agacgatttc	840
agctttgatc	tcgatggcga	acgaatacgg	tttgactatg	ctatatcacc	atacatggaa	900
ctccgggaga	gaacgggtctg	cttcagggtt	actcgacatg	atcggcatcc	catacaatac	960
gggtgacncg	ctcgtcgaat	cctgactttc	aacaaatatg	tgtgcaatcg	ttttctctcc	1020

ggct

1024

(2) INFORMATION FOR SEQ ID NO:661

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 5483 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...5483

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:661

ccgacaccca	gtagtaagaa	ttgacgttgg	tcatgtcgaa	cagattgaag	aggtcagccc	60
ctatgtaggc	cccttttact	cccattagcc	atttgcttgg	ccggcaaagg	agtcattccg	120
gtcgagccat	ttgtacatta	ccccagtcg	acacgcttat	aggccggtgc	ggtaaaggcc	180
ggcgagctaa	gcccttgctc	ggattgagct	ggggcaatcc	tccgcttagt	gcagcccgcg	240
gggtgctgtg	atgcgtttat	tgcccggcac	gtactcctga	aggaagaagg	agaattgtaa	300
gtgggtgcgt	tcatcagtg	taaagaaccg	tagccatcca	gttctgacgg	gcttttataa	360
tggaagccgt	cagccacgaa	tccactccgg	gtccagttcg	ccgaagagct	tgagatcgat	420
acccgcagca	taaccggaac	catgttttcg	cccagatagc	ggatcttcac	gttctctatt	480
atatacgggt	gatgttgaac	aggctcttgg	agtaagcctc	tgccgtaaac	ttgtattttg	540
ccccccatt	tcgaagggtat	agtctgctcc	tgcgagaatg	tgaaaagccc	ctgagagcgg	600
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caggaatata	ccgagccggt	tgtggagaat	catgccatca	tgatgtacaa	tctttgctct	4320
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ggctcttttt	cggagaggga	ctgagaataa	gcataatatt	gtacggaatt	agaataaaaa	4440
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cgagggccgat	gccaaagggt	tagagataat	gacgttcccc	gaattggcat	aacgggctat	4620
tcattcggcg	acttggtttt	ccagcctttc	ctacagaacg	agccaacgaa	gccttgtgcc	4680
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ggaagaaaag	ctgtcaactc	ggctgtggta	ttccagcagg	gaaagatact	cggtgccatc	4800
ccaaaactta	cctgccgaac	tatcgcgaa	ttcaggaggc	tcgctgggtc	taccggctca	4860
taccctgcag	tactcgacca	tcagtatcgg	tcagcacagc	tacccatcgg	gcggaacctc	4920
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caccggcaaa	gcctttattg	ccgaggccgg	agagtcgtgg	aggagatgga	gcgattccgc	5220
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tcaatagcag	ctcaaggctg	ccgttacctt	ccacacccat	gacgaaaagt	tcaatcagct	5340
gccttcaaac	tacgtagccg	gcaggagtct	cttccgatga	ccgcgccgtg	ggatcgcaac	5400
cccttcatgc	cggaggacaa	ggatcgtaag	gagcgttcgg	cgagatgatc	aatatccaag	5460
tgtcgggctc	atgcaacgcc	tgc				5483

(2) INFORMATION FOR SEQ ID NO:662

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1186 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
(B) LOCATION 1...1186

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:662

```

ggctcagacg aggcatagat cccatgcaca gctctttgcc ggagaagagg gggaggggct      60
ttcccttttg ctttggccta cgcacgctat ctcaactgca gatgccgacc gatacggatg      120
cttgtgggtca ttgtccgtcg tgtgtgaata cgatgcgctg gcacaccccg atctgttttt      180
cgtctatcct gtcgtaacgc gtcctcttcg cctgcaccga gcgatgacta catccgtcag      240
tggcgggagat gctcgggtcg gaatcctact ttaccctcgc cgactggctc gaatcatcaa      300
agccggcaac agccaaccca tcatttacag caaggaagcc gaaccgtgga gcagaaactc      360
agcttccgca tctatgaagc ctctgtatcgt gtgtgatgat ttggcaaccg gagcggatga      420
atgaagccat ggcaaacaaa cgctgaagct gatagaggag ccgcccgagc atacgctctt      480
ctttatgatc gcagcgagcc ggacaagggt ttgggaacga tcaggagccg tacacagcta      540
tcaacgtgcg cttgctgcac gagatcgaaa tagtggaagc cttgtctcta acaatcaggg      600
aaacacggcc gacatcatcc gcatagcgca tttggcaagg gcaactatcg gcgagccatg      660
gatctctatc ggggcgaatg ggctgacgcg acaactttgt gcttatggga cgaatgatgg      720
gtagtatcat caaggggatc cctccaagat gcgtcccgtg gcagatgagt tggccgctct      780
cggagcgctc gccagatcgg gttccttact tattgtttcg ggctctttcg cgattgtata      840
taagtagagt aggggttgca aaactgaact acctctctcc cgggaagaat ccttcgtcga      900
tatgctcagt ggaggcatta cgggacagaa ctccgaccgg tgatggagga ggtggagctg      960
gctatccgtc atattcgtca aatggaaacg gtcggatgat ttttttcgat ctctctctcc     1020
gccttacggc gctcttgccc ctgctcttcg tgccaaaggc cttaaataag caaccctgct     1080
ttcccccttt atacggcttg tacatagagg gagcgcgccc tgattgctca ccatttcact     1140
ggatttttgt cgctttttca catccgttca aggcgttatt gctttt      1186

```

(2) INFORMATION FOR SEQ ID NO:663

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 469 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
(B) LOCATION 1...469

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:663

```

gtttgcagtg ttaaagtaga acctacagat aggtttttctg ttgttggtcac taaaaggacg      60
ctaaagtaag actgagtgtc tcttgaggca atacggatcat attgatatat ttccggagaa      120
ttccttttac aatcatatat gcttccactc tgcttcggtc gttacaacaa gaggttcatt      180
agaatcatct tgctctgtga ttgctcctca ctgcgacgca cttctttact tttatccatt      240
accgnttaaa tcgagcagta atcaaatcat taataacaga tttgaaagac ttcttgtaag      300
atccttgaat tgttcaaaaa tctttgctgt aataattccg tcaaaacttg gtttgcgagc      360
attcttacca actgntcaga gggctcattc atttctgcaa gtatcaaaat ctttcaactc      420
tttcatatac cttaaggtca cagccagtac cttagaatct tatcaacca      469

```

(2) INFORMATION FOR SEQ ID NO:664

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2539 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...2539

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:664

actggcgacg	cagaaattcc	acggagtcgt	ccgtgnagcc	attatcgggt	acgataagac	60
gagccgattg	tcgcggtgta	tgtgctataa	gagagggaga	actcntccag	catcttacgt	120
ccgttccagt	tgagaatgat	gactgcattg	tcatagtttg	cgggtattat	gcaatcgggg	180
acgtttccag	cggcggggct	ccaaagccat	tgcgacggat	cgcgacggat	ggtggtctcc	240
atcagcggac	atattcttcc	gtaatgcttc	cttcggggct	gtcatcctga	ggatgtgcaa	300
gagcttgatg	gtaccgggtga	agacatcgtg	ccccgttttc	tcccatccat	gtagactacc	360
ggcagagaga	acttacggcc	gagctttctcc	gtccattgaa	gaaagccggt	tctctgccga	420
agaaggtagt	ccagtatgag	cggcataggc	cggacttttg	tcggcgatga	agatgactag	480
tggagtctct	tcggaatagg	attgcgaacg	agtcggagca	gttcacgtgg	cacgtcgtgt	540
tggctatacc	acgcgaaccg	aatcgctccc	gtatgcgatg	catgagccgt	cggagaagat	600
acttttcaac	gggcgaaaaga	tctgatagat	ctgtaggcca	aatctttgat	gatggcctga	660
ctgccgga	agtactccca	gttgccaaat	gccccatcat	caggagaatg	gcagggtgcc	720
cttcggctcg	taagcgatca	ggacatcgag	attttcgaat	gagatgtggc	ggcggagttg	780
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gtcacgtacc	acctttctcc	gatagcgaac	gcggtatgca	gcagccctgc	caggatacga	960
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gaaagcatct	gtatacccg	caaatttact	gctttttgag	actgtgggag	agatatttca	2400
ggcaactcac	agggcaatcg	catttgaact	gtcaacacac	ttataaacct	actaacgatt	2460
gctacactcg	gttatcaaac	aagtacgaat	taatgggact	ttgcacaaca	agcaggcncc	2520
ttttggttat	tcttcttat					2539

(2) INFORMATION FOR SEQ ID NO:665

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 619 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...619

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:665

cttgtaatgt	tactgttgcc	ataactgata	atgctgttag	aaatatttta	gactcattgt	60
aataatatct	ttattcctaa	aacaaggagt	tcgtcttatg	ttcatcgtac	acgaatcatg	120
ctcaacccgt	cgcgcacg	aactatcagt	tctccacacg	ttcatccagc	aagaccatth	180
cgttgaagcg	aaggatccct	gtgtctggct	atcggtcgga	agaggctcgg	ccaccactth	240
accgtccaaa	gcgtattatc	ggccaggatg	agtgtctcgg	gaggcagggtg	gtcttgatca	300
tttcatagta	aaggggtgat	tgtctcttgt	ctgcatccat	ataatcagat	cgaagcggtc	360
gttcttgacc	aagtccggta	gtagatccaa	ggctcccaat	atgtaatctg	atcttaccct	420
caaaatccga	tgcctccaga	tgcggcggat	gaagtcctcc	atctcgtcgt	cgcgctccag	480
tgtgtggagc	gtccgtccgg	agtcaatccc	ctctgccaa	gagagagagg	catanccgga	540
taggtgccga	tctccaagat	ccggcgtggc	ctcatcagat	gagagatctc	gacaaaaaac	600
gtccctgcag	gtgtcccg					619

(2) INFORMATION FOR SEQ ID NO:666

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 642 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...642

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:666

gagctcgcca	aaaatttgta	gaacctatth	cttcatcaag	gtactctatg	gatttatcaa	60
ccaattcgct	ttgaacatct	ctctcaagcg	atccgcatac	ggctcgcttc	tgtggagaat	120
actgtctgat	tagcatatac	ttgttttgca	attgaactaa	attagctgca	gaatacatcc	180
ctttttccaa	tagttctctg	tttgatttaa	tgcatactth	ggctctaatt	tttgtgatgg	240
gccgaattth	gataataagg	ggctggaaat	aaatttccct	cgcgcatagg	cctgttatat	300
ataagtctcc	aatctttctc	gaaaaccgac	acaaacgacc	gcactttggg	tcaatcgatc	360
aataggacaa	agatcagaaa	tcattatatc	tgactgatat	tcacactcat	ttctccaatc	420
tgtgtcaata	tggcaacccc	attgtctgat	cattatccca	agcgcttctc	cctaacttaa	480
gaagcaattg	gcttcctth	caattttatc	tgttcagtat	acctactatg	ataaagtata	540
cttcttcttc	atgaccgttc	tccaaaaacc	attgatagta	tgcttggtgc	tatcgacagt	600
atttgcgaaa	ataatcgcac	tacctctatc	aaggcatatg	gt		642

(2) INFORMATION FOR SEQ ID NO:667

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 789 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...789
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:667

```

acatgacgta gtcaatatcc tccggcttica atccagcacc ttcgatagct ttgtcataac      60
cagcttggct cccaacccgt caggatgact tgccgtcagt gatatgcacc ggctgaaaga      120
cctgttccca ccaattcggc atagatggag caccgcgttt aagagcatgt tccagttcct      180
cgagaactat acatgcgctc cttcacccat tacaaaccg tcacgactgg cactgaaggg      240
gcggcggcct cttgtggagc atcgttgcca gtggagagag cattcattgc attgaacctc      300
ccactccggc agcgcaaadc gacgcctcag agcctcctgc aatattacat tggctttgcc      360
taagcggatc agatggcaag catcgatcag agattggtag aggaagcgca tgcggatgcg      420
atggaatagt taggaccatg gagccgtatt tgatcgagat ctggccgggt gcaatatcgg      480
agatcatctt gggatgaaaa acggattgaa acgaggcccg ttctccggat tgtagtgcgc      540
acttcacttt cgaaagtcgt cagaccaccg attccggcag aaacgatcct cccacacgat      600
tcttgtccaa ttggtccaaa tcgaggccgg agtcctttaca ctctcatcgg ccgctacttg      660
tgcaagttgc gcgtagcggg ctaactacgc acctccttgc ggtcaaaatg ttgcaaaggg      720
tcaaaaccct tcactcgcat gcgaactgcg ttttgaactt ggaggcatca aagagcgtga      780
taggccggc                                     789

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(2) INFORMATION FOR SEQ ID NO:668

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 651 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...651
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:668

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tagaggatcc ccatcaagtt tggctccttg ttcgacgaag aactaatca gataataaca      60
gatagatatg gaagacgaat tgctgaactt taattatagg attccggttt gcccgttatt      120
atcaaggtaa tcggagtcgg cgggtggtgt gcaatgctgt caaaaacatg taccacggca      180
aggtgcggga tgtatcttcc tcctgtgtaa taccgatgtg caggctctcg accgaagcga      240
ggtactgata ggctggtact cggccgtgag gtgaccaacg gtctgggtgc cggtgccgtc      300
cggaagtggc acgacgagct gcagaggcca gcgaagccga catcgcaaga tattggatga      360
tgcccatacc cgtatggtct tcgtaacggc cgtatgggag gcggaacggg taccgggtgcg      420
gcccctgtca tcggtcggat acacgtgaac tcaatatcct cactgtcggc atcgttacca      480

```

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tcccatcgt ttcgaaggca agcgcaagat tctgcaggca ctccaagggg tggaggaaag 540
cgcaaaacgt agatgcctgc tcgtggtcaa taatgaacgg ctccgcatat atacaagatc 600
tttaagcttc gacaatgctt tttgccaagg cagacgaaca ctgaccaacg c 651

```

(2) INFORMATION FOR SEQ ID NO:669

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 898 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...898

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:669

```

gtgctgatgg tcattttctt ccttgctgtc ggtttggaga tcaagcaggg attttggtcg 60
gcgaattgtc ttctttcaag aaagctatgc tccccattta ggagccatag gagggatgat 120
cgtccctgtc cttttcttcc tgctggtgtt catgaaggcc ctgggtgcaag aggtgctgcc 180
atccctatgt ctacgggtata gcttttgctt tgccggcctt ggctgttttg ggaagtcggg 240
ttccgcaagc ctcaagggtat tcctgacggc tttggctgtt gccgacgata taggggtatt 300
atcgttattg cgtctttcta tagttcccat atcaacatcg ggagttggcc attgccttcg 360
gtatcctatt catcatgtat ttgatggggc gttgcatgtg agcaacttag ggctttactt 420
cgtctgtact ttctttgttt gctctttttc ctacagaagc ggtatccata ccacaatagc 480
cgggtgtgctg cagcttttcat gattccggcc cgtcctggac tacatgccaa gaatcttcgg 540
ccgagatgcg ttcccttttc gaggcaatgc ccaatgacaa gatacgacat caggtagctc 600
tctgatcttg agccataacc aaatcaacgt aatcaacca tgcgtaagat tgcgcgtaag 660
gctataagtc ctatgcagct catggagagt atctcagccc gatagtaggc tacttcgtct 720
tgctctctt tgctttgcca atgctggcat cacgctcgga ggagtcacgg cagatgcctt 780
gngggcgtgc ccgatggctt gattcttggg cttgttgtcg gcaaaccctt gggttacttt 840
ttcacctat ggtttgncaa gatgaagctc tgcccttggc ccgaaggaat gagccccgc 898

```

(2) INFORMATION FOR SEQ ID NO:670

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 610 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...610

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:670

aagtcgctgc	ccatgaagta	gtctttcttg	gccgatgctc	cactgatgca	cgggtcttct	60
tcatagcagg	caggtagagc	catttgtcat	catccttacg	atctgatcat	aatcccatgt	120
gaggaaaccg	gtgcctttga	catcgccgga	tagaggaaaa	acataatagt	cttcttgtct	180
ttcttatcct	taccagtc	atggagtagg	aaatgagttt	gcgctcacgt	acggctcctc	240
gtttataatg	agcttcatag	tgagttcgga	gcgacgcgta	tcaccgtcgg	ggcgtctttt	300
acgcgctgtg	ctatgtcgcg	ccctgtcttg	gcgtagatgc	tgaagagacc	attgctacca	360
tggctgtcat	gaggggtggtc	tttgccaatc	gttcatcggt	ttctgttttt	gttagctgtt	420
ctatatattag	tcttcccat	cttcaggaag	gcaaaaatgt	acaggcatat	gcctaatacgg	480
taaccgtgtt	gggagagatt	ggtctgccgt	cttttttgaa	accgatacgg	caaaatcttt	540
ttcccgaata	ttcggaatcg	tcggaacagg	gagtggcgtg	atgcagaatc	tgccaaaagg	600
gctgtgaaca						610

(2) INFORMATION FOR SEQ ID NO:671

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 3208 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...3208

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:671

ccgcaaatac	ttcgagaagg	acaaggctct	ggaacgacgc	ttccagatgt	gatgggtggac	60
gagccggacg	agctaagctc	catctccatc	ctccgggggtt	gaaggagaaa	tacgagaatc	120
accacaaagt	gcggatcaag	gatgatgcat	cattgcggcc	gtgaagttgt	cgcaccgcta	180
cattaccgag	cggttctgcc	cgacaaggcc	atcgacctga	tggatgaggc	tgccgctcgt	240
ctgcgatgga	agtggattcg	ctgcgggagg	agctggacga	gatctcgcgc	aggacaagca	300
acttgagatc	gaacgcgaag	ccatcaagcg	agagaatgac	gaaagaaggt	acagttcctc	360
gacagggaaa	tagccgaact	caaggagaaa	gagcctcgga	gaaagcccaa	tggcagaacg	420
aaaaagatcg	gatcaatcag	atcagcagct	caagatagat	atagaggagc	tgaagtttca	480
ggccgatcgt	ccgaacggga	gggcgattac	ggacgagtgg	ccgagatacg	ctacggacta	540
tcaagcagaa	agagacggag	atcgacacga	tacagcagca	gctgcacgat	tgacgcgtgg	600
cggctccatg	atcaaggagg	aagtggaggc	cgacgactag	ccgacatcgt	gtcgcgctgg	660
acgggtatcc	ccgtcagccg	catgtctcaga	gcgagcgcga	caagctgctt	catctggagg	720
acgagctgca	caagccgtga	tcggtcagga	cgaagccatc	cgtgccgtgg	ccgatgccgt	780
ccgtgcagcc	gggcaggcct	tcaggatccc	aagcgtccga	tcggttcgtt	catttcctcg	840
gtactacggg	ggtgggcaag	acggagttgg	cacgtgcctt	ggcgaattgc	tcttcgatga	900
tgagagcatg	cttacgcgaa	tagacatgag	cagtatcagg	agaagttcag	tgccacgcgt	960
ctgatcggtg	cgctccggg	tatgtgggct	atgacgaggg	tggccaattg	acggaagcca	1020
ttcgccgcag	ccttattccg	tgggtctttt	cgatgaaata	gaaaaagctc	acccggattg	1080
ttcaacgtat	tgttgcaagt	cctcgacgat	ggccgcctga	ccgacaaaag	gggcatgtgg	1140
taaacttcaa	gaatacgctc	atcatcatga	cgtcgacctc	ggttcggaca	tcattcgcga	1200
gcggatgcag	aacctcacgg	cggagatcgc	cggtcctcca	cggcccggac	ggccgatgag	1260
gtgatgcagc	tactaagcat	acgatccgcc	ccgagtttct	gaaccgtatc	gacgagacca	1320
tcgcttcacg	ccactgaccg	agaaggagat	ctacgagatc	gtccgccttg	agtcgatggg	1380
atcgtgcgcg	aactggccga	taacgacgtg	gtgtctccact	aacggagggt	gtcgtgacct	1440
ttgccgctcg	cgagggatat	gatccgcagt	cggagcgcgt	cctgtgaagc	gagtcctgca	1500
gcgattcgtc	ctcaacgagt	gagcaaggca	ctcttgggccg	atacggtgga	cagtacacgt	1560
cccgtcctat	cgattgcata	gacggatcaa	tcgtcttccg	caacgaatag	tagcctcggc	1620
tgccttatte	ctcttattcc	ttcaaggctc	cttcggggcag	gtggctgcc	cttcccggag	1680
gagccttttt	tatgtttcaa	ggggtatctt	cgagtcatcc	ctaaggggtc	tatatagaga	1740
ggatagtata	ctctcatatg	agacatagta	tcctctcata	tgagaccata	gtatcctctc	1800
gtatgagacc	atatatcctc	tcatatgaga	ccatagtatc	ctctcgtatg	agaccatagt	1860
atctctcatg	tgagaccata	gtatcctctc	gtatgagacc	atagtatcct	ccatatgaga	1920

ccatagtatc	ctctcatatg	agaccatagt	atcctcttat	taagactata	ctattctctc	1980
cgtattttatc	atgttttttt	caggaaatga	tttcaacttta	tcgacagagg	agaaagcaaa	2040
gggatggcaa	tatcgggtcg	ttcgtctgtg	gttttcaact	tccatacagc	cgccatggag	2100
caaattgggag	gggcgacccg	aaaaaggatt	gtttccccga	aagacgaaca	agggtctcct	2160
ctgcggagtt	tatcgggtta	ccttccggaa	gtagctgtag	aagagatgcc	gagcagtgtc	2220
aggctgatgg	gaaaggccga	ccagataccg	gccactgcat	gggcgtattg	cccgatatga	2280
atacgaatcc	cagcaaatag	gaggtatcgg	tgccagcaat	acgtggcaga	aagctgctgc	2340
cggagccaga	aacgaacgcg	ctccattcct	cgcagagcat	tggaatagat	ggcttggagg	2400
gatctccgaa	ttggtagacg	acaacgggga	tcaacgtaag	ggcaacgatg	gcgccacctc	2460
ttcgtcgggc	gtgaagagga	aggaaaagct	gtgccgtgta	gcaaaagcag	tacaaccaca	2520
acgcaggcag	tcaaagcggc	cattcgggtg	cagtggcggc	tacgcggcgg	acttcgtcgg	2580
gtttgccgtg	cagcttgagt	gactgatgcg	gatgggtggg	gcagcaccaa	gcccgtataa	2640
gacgagtagc	cgagcgtggg	gatgacgcag	acgatctggg	gtgctgccag	agcctatcgc	2700
cgagtcgccc	gacaaaaagg	acggcgatgg	tgaaagaggc	cgatcgagtc	ccatctggac	2760
ggcaacgggg	agtccgacgg	agaataggcg	gcgtaggcgc	gacggatatg	catctgccgg	2820
cagaaggcgt	ggcggatcgc	tgccatgagg	gtctgcgata	gaggaaaagg	acgatggtga	2880
cgagcatcag	cggcggctca	acagggtggc	atagcccgca	ccgaggagtc	ccatttcggg	2940
agaccgcctt	tgccgaatat	cagcaggtag	ttcagcccga	cattgaagaa	ttgcccgata	3000
tggtaatata	catcgggggtg	cgcgatcgcg	tcatgccgca	tagaattgct	tgaaggcatt	3060
gaataccgtg	acgaggaaga	ggcctccacc	tgtacccaat	aataggggat	ggcgagaggg	3120
cggagcgagg	gtgggagttg	aatgtatcga	acaggggaac	catcacggct	gccacacctg	3180
cgaggagagt	ccgatcgctn	tattgagg				3208

(2) INFORMATION FOR SEQ ID NO:672

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1747 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1747

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:672

tcgttccccg	caatacccg	ggcagacaga	agcgcgagag	tatagatcgc	tgcaggaagc	60
tttgagagag	gatttgccc	ttatcacttt	cccggccgct	tttgttcccc	tctgatcgaa	120
ggtaagggtc	aggatacccc	gtggaagaga	gctttgtccg	tcaggcctac	gccagcaaac	180
gggatatagt	tccacttttt	tcgatggact	taattcaaag	cgtttctacc	ggatagagcg	240
tctcctcagc	tccttgggtc	taagttcaat	atcgggatgg	ctttgctgcc	ggataaatgt	300
ttcggagcaa	gggacgccat	tttcgcgtat	tcgcaggccg	gccattccat	ggcaatctct	360
tgctctgccc	ccccgagata	cggccgagca	ggacttcata	tccgttcact	ggtatatgac	420
ctcagcccg	cggccttaaa	gaataacccat	taaacccatg	tgccctgaac	ccataattgc	480
tccgatttca	ccgagttgct	cgagcaggag	ctgactgccg	atcgttttct	gcggatgaca	540
acaaagccgg	caatgagatc	tatgttttta	cggccgaaga	agctccgctt	gcatgaaaga	600
agtaggccga	ctgcgagaag	aagcctttcg	gcattatgcg	gaggtactgg	caaggcgatc	660
gatatagacg	agttcgacac	catgccggga	gctacaaaca	gctgatcgta	tgggatccgc	720
aaaacaaggc	tataccggag	gtaccgctt	tatctatggg	cgggacgttg	ctttcgatac	780
cgatgcaagg	ctttgctggc	aacggcagag	atgtttcgct	tcagtgatgc	tttttgacag	840
attatctccc	ctacacagtc	gaattgggac	gttcgttcgt	gtgctccagt	accaatcgac	900
acggatgggc	acaaaggcca	tttttggtg	gacaatcttt	gggacgggat	cggagcactc	960
actgtagtca	atccagaggc	ctctatttct	atggcaaggt	gaccatgtac	aaagactatg	1020
atcggcgagt	cgcaatctga	tcctgtat	tccttcgcaag	cacttctccg	atccggaagc	1080
ttggtcaagg	ctattcatcc	cctaccgata	gagatcagtg	cggaggagaa	gccttggtct	1140
cctcatccga	ctttgacacc	aattacaaga	ctctcatata	gaagtgcgca	agctgggtat	1200
caatatccct	cctctcgtga	gtgcaatata	gctttgtctc	cggagatgcg	tgttttcggc	1260

actgcagtga	atgatctttc	ggagaggtgg	aggaaaccgg	catattcatt	gctgtgggta	1320
agacctggaa	gagaaaaaac	aacggcacat	agagagcttc	atcctcagcc	ggacgaaaaa	1380
aaaggtctcg	acagtagcaa	tggccgatca	taacgaccgc	gacgccaagg	cgaagagatc	1440
gcgctgaaac	acctcaggca	gcaaggctat	agatagaagc	cctgaactgg	cagtcggggc	1500
ggcgcgagct	ggatatcggt	catccacgtc	cagagaactg	gtcgttggtg	aagtcaagac	1560
tcgtaccgag	gctttctact	ggcccccgaa	gaggctgtgg	acgcacgcaa	gcggcgatga	1620
tttccgaatc	tgcgcatcac	tatgtgcgta	tgtacgccat	cgatctccgg	tacgcttcga	1680
tggtatatct	gtagttttga	gtgctgatgg	ttcctcaaac	gcatacgaac	cagagaaaat	1740
gccttcc						1747

(2) INFORMATION FOR SEQ ID NO:673

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3757 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...3757

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:673

gggctgactc	cgatcggtat	atctcctttg	agtaggatcc	ctttttcttg	gcataggccg	60
atacggcatg	cagctgctcg	tggagtaaaa	attgtacgag	cgatagtaat	tggtctccgt	120
tttcagttcg	ggagataccg	ccattcgctcg	atttggtttt	ttccccacgt	atattcaggc	180
cacagatgga	gtggcatccc	tcgtacttgt	cgcgcatagt	gcaaaaagcc	gcatatggat	240
ccaacaatcg	gccgtgctg	agacgaattg	acggaagact	ttcttgcgca	tcacttcgcc	300
ccttcctgtc	gatacagggc	atgcagaaat	tcctccttca	gagcaacaca	gccggataat	360
ccatttgctt	gagtgccttc	agtgtctcgg	ccgttctccc	atttttgcca	tcagagcact	420
attcttcagt	cgtaggtagc	ctccaaatcg	gcatagatag	gatggatggc	gatgaccgat	480
actatattat	tggataggag	tcgcgatagg	agcgtgtgta	agtgggtgctg	ttgatgggcg	540
gagctgtata	atgcgctggc	cggtcatttg	cgcccagctc	accatacgcg	nagtgcaccg	600
aagtctccta	tgccccaatc	cttggtgggtg	cgcatgcaaa	taggggggatg	acggtgccgg	660
catagcgtgg	catataatca	ccctcgggaa	acagagaccg	gccaaataga	cggcaccata	720
ggcatccgtc	tcttcaatcg	gtaagatctg	ttttctccct	cttcccaacg	gatgtcggag	780
cagtgtcttg	tccggcaatg	aaaaacttat	attccaaaag	tggaggtaat	tcaccttctc	840
tagcgtgata	gaccattcgc	cctttcccaa	atgggtgcatg	gccgggcttg	ctccactgac	900
cagttgccaa	gagcaggact	attgcccgtc	aacagatctt	ctggctcgggg	tgaacacatg	960
gagcatatag	ctgcacgacg	ctttgacgcc	ctctttcggt	ggtttcgggg	cacgtttcag	1020
cttctcctct	ggcggaagaa	aacatcgtaa	aaagcagaac	tgaaaaaggg	tgcattttcg	1080
gtcgatcgat	ccagtaatcg	tccatcagca	ctcgcttgta	accatgacca	ataccagatg	1140
gtgcatgcgt	ttccactcct	tgcgaaatgg	gttgccctcg	cgtctcttac	cagatagtaa	1200
tactgtatat	ccttgccggcg	accgttatga	tcacacgttc	cttcccatct	gtcctcgccc	1260
gttgctgtca	gctcaaggca	agtgtctcat	cccaatttcc	caattcggcc	gaagagcccg	1320
atagcagagg	cggtgcccc	aatcggtctg	atacttgatc	gaaaaaacta	tcccatcggt	1380
cttacgaata	tctcatctca	ttacagccga	tcgatcagcc	atztatctcc	tcataggcgt	1440
aggcggcaaa	gctccccagc	caatgatcgc	accataattg	ctattgaata	tctgcttcat	1500
gccctcttcg	taatgccgct	ggctgcttgt	cgcatccgca	ttccgatgcc	atcattcgcc	1560
ggtaaagcct	cgctatagct	cccatacacc	acgctctgga	aaaggaaagt	cctacgaatg	1620
gactatgtga	tagtcgttca	gatcggatac	gatgggaggt	gtacacgacg	ttccaatccc	1680
tcggctcgtaa	aaaactgttc	gaaccattgc	cggtagtatc	ggcaggcatg	attcgtctca	1740
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cggtatgggt	cggttttggc	gaagaggtcc	aatgcttttt	ggcggagtga	atcccgaata	1860
cactgtctcc	catagcaaca	gccagtcgt	aggcaaaggc	catggcgaaa	gcgagttgga	1920
gtgcgtaccg	atcctatcgg	cgtaggtcat	cttgagagaga	gagcttttca	ccgtgctacg	1980
atagtccgag	agagagggga	catatgccgt	gccattcttg	ccgcacggct	tgccaagtgc	2040

gaagacacgg	cagcatccga	gatagccgaa	gcaattcctc	atccaatttc	aaaagccaag	2100
cccacccctag	gtacgctcga	acgtcgcctc	cccgggtctg	tcgaaatagg	ccgtttggct	2160
gcgagcttct	ccgccgtaaa	cgaatgatcg	agagcagcga	cgatgtatcc	atcatggcta	2220
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atcgaatgag	ccaaagaaaa	cgggtgcaac	tgagaggggg	tcagtcgggc	atcggcttcg	2340
tcattgatca	ccgtccctgtc	ttattagggt	attctgtcgt	aatactcttg	aggggcatcc	2400
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acgttaatac	cttccactga	tcgaccagtc	cgctccgattc	attcagatac	agcactctga	3240
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tcaagtctat	cttcccgcga	ttttggaaag	atccaactcc	ggtgagatca	ggcctgcac	3420
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agacggattt	tctatcgtcc	agcctgtcag	ttctccgtag	gagtctttat	tccatcgaag	3600
ttttcgtcgg	taacaaagaa	tgcgccctcag	cggcagctgt	acgcttgaag	cgagcgaaat	3660
agttgtagcg	ttcgggtgaag	gtacagcgtt	ccatgaagcg	gtatagggtca	catcttctgc	3720
ggatccgtga	ggttattcac	cggatttcat	nttgggc			3757

(2) INFORMATION FOR SEQ ID NO:674

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1658 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1658

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:674

tcgaactcgt	gtcggatgag	acgaccgtct	cctcggcgga	tatcaaggcg	tctttgaccg	60
cgctgcaaaa	gtgctcatcc	gtctgcttca	ggacggcaga	gcattgattg	tggcgacatg	120
ggtacctacc	gccccagcat	tacggcgagg	ccgggtccgg	cgttgatagt	gccgacaagg	180
tgacggtgga	gcttgtgaca	aggcgaaggt	catctatacg	cctcgtatga	aggtcaaaaac	240
tgctccaagg	gcgtccgtat	ggagcgtgcc	gagcgtgtcc	ttgatgtgcc	ttacctctt	300
cgatcaagcc	gaatgagaac	aacagcggcg	gatcttcgtc	ctcgacaaca	acggacacgc	360
cggcctgtaa	acaaagcatt	taatagcgac	aagataaatc	tgaacgtcct	tattcgacaa	420
tacatcccta	aaggttcttc	ttcatcgata	taacgaccaa	acagatctcc	attatacaca	480
acaaaccgaa	ctcagaccag	gaaagaaaact	cggattcaga	acgccgttcg	aatgcttctc	540
ccaaattcac	cttagtggtg	catttatttt	tggaatctgc	acagccaaaa	aaagaaagaa	600
aaacgcaacc	gaataagaat	aattgctata	tttgcgtcgc	tatcgggatg	tagcacagtt	660
ggtagcgcgc	cacgttcggg	acgtggggtc	ggaagttcga	gtcttctcat	cccgacaacg	720
ccgtcaatat	tccttgggat	tattgacggc	gtttttttgt	ctgtaacaaa	tgcaaatcct	780
caccctccct	aaacagagag	aactgacgga	ggggctcgca	aaaagggcag	atagttacat	840

gtttttgccg	aaaaagaact	gcatcagcag	caaattcaag	acagcaaagc	acctcccatc	900
aagacgatct	ggcgctgttc	aggcttgga	acagaaaata	ggccactatg	ccggtgacga	960
agatgaccaa	tatcagaaaa	tgatgatacg	tgtataacgt	gatttgcgga	gcttcattat	1020
gtcattgtca	aagagaaaaa	aatcagagcg	aaagagcgcg	gagttttag	ccacgagtcg	1080
aagttcctgc	accagtcctt	tttcgccgat	gaggtgaccg	gctcctaagc	tatgagagtg	1140
ggctttgcag	acagtagcgc	aggatctttt	tccatcatcg	tgcattacgt	ctatagacca	1200
aacgctccat	atcctgaggt	gtcattattg	accttcgaac	acggcttcta	tctgctgagc	1260
cttatagtc	ctgaaagt	ggctaaagga	ttctgctcct	tttgtatata	tcgaacagtc	1320
tttagcaggt	tttagcttgc	tctttcaggc	ctttggaaaa	gaggagatat	tgatagcatc	1380
ccaagcctca	tcctgcgttt	cgaaaaacgc	agcctctttt	cgtcagcgag	tccatgaacg	1440
acaacgccga	catccatcgg	ttcttgcccc	gaaggcgcat	agtctcggcc	cccatactga	1500
caaagaaaga	aacgatagag	ggcggagggg	tatctggtcg	acagaacca	tgccggcgga	1560
ttggaggatt	ggttcaattc	ctccagctct	tcaggagaat	agagcatgnc	ataagtgtat	1620
cgctcggtag	catcatgttt	gcttgcaggc	gcggcatc			1658

(2) INFORMATION FOR SEQ ID NO:675

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 809 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...809

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:675

ccttgccaaa	agtaacaaag	gaagcaatga	ccatggacaa	aagaactgtc	gacagccagt	60
attacagagc	ctaacgtaaa	gagggccggc	agtatgtgac	gggcttcata	ctcccgggat	120
gccgtctttg	caaatagaata	cgggcaaacc	ggagttgtac	acctgacgga	agaacttctt	180
aaaatcgatt	cgccgttatg	gaaaacaaag	gcttccggaa	acaagcatac	gttgatatccg	240
gccttaagag	acgcagacta	aatcaatat	cttcaccgaa	gcgcatctct	tccgaaaacc	300
accgagttgc	cgatagaccg	aaagtttgca	gccaaaattg	aaatgcgagg	atagaacttg	360
tccagtcgta	ctcttctacc	cccacgaatg	ccccggtcgt	gaagaaagag	gtcatcgcat	420
agttaatggc	tttttgtatg	gtgagaatcc	ttctgctgct	gcatcagggc	cgccgaaagc	480
atctgcttgc	tctgttcgat	cctttttttt	actgcggcta	tataaccgct	cggcagtaca	540
catccgagtc	caatatcaac	agatatctgc	ccacagccat	tcgtgcacaa	tgttgcgcgc	600
agcagccggt	cctccattcg	gcactcttac	atactgtttc	ggagaagttc	tctgacgcga	660
gtccacttct	ttgtcgcagc	acacagcgaa	ccatcttcta	cgatgatcac	ttcaaagtcg	720
ctattcgtct	gtatagcaga	ctctccagca	gctcccgcac	ttcgtcgggg	cgattataaa	780
cgggataata	atagagaaga	ccgnngggg				809

(2) INFORMATION FOR SEQ ID NO:676

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1028 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1028

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:676

ctgtctgata	ttgcccaagt	agatggcttc	tggatggcgc	aaagatgaaa	tgtccaatgt	60
gcagacgggg	catcgactg	tactggaaga	ttaagaacgg	agtttaaccg	tccgatcgac	120
gaatcgaagt	tcactgttac	ttctctcaga	aagggttctct	ctaaactatg	gaagtgaaga	180
aaaacacagt	ggtgctcgcc	ttctgatttg	gttcgtggcc	attcttctct	tccactcctc	240
acggcgtggg	gacaggaagg	ggaggggagt	gcccagataca	gattcaaagg	attctggata	300
cctaccatgc	cgtacgcagc	tcttctcctt	ttgatttcat	gagtcgcgta	cgagagttag	360
aggtgagctg	gagaggtcgt	tcggtaattc	gaagtagccg	tatcgggtcaa	tgccacctac	420
aatgctctac	tgaagacga	gccggcttac	gtttacgtga	agccttcttc	gagcatcagg	480
aagagcattg	gggttgccgc	tcggacgaca	gattgtcatt	tggggggctg	ccgacggtgg	540
cgcacacagg	atctgatctc	cccgatggat	atgaccgagt	ttctggcaag	gattacgatg	600
atattcgtat	gccggtcaat	gcattgcgtt	tctctgtttc	aacgaatcga	tgaaagtgga	660
agtcgtggtg	ctgcctgtat	tcgagggtag	cgtctgcctg	tggatcctcg	caatccttgg	720
aatatcttct	cccttcgccc	attgctcagg	ggatgaatat	cgtctggaaa	gaagaagccg	780
gcaaccggcc	ttcaagggtg	ccaatatcga	gtacgggtgcg	cgatggagca	ctagctctcc	840
ggtatcgact	tcgctttggc	tgcattgcat	acatggaaca	aaatgcccgt	catcgaagta	900
cagggcattg	tgccgacgga	aatcatcgta	gcctcgctat	taatcgtagt	ggattggtcg	960
gcggcgacct	cttcggtacc	cgtcggacag	ttggttttca	agggagagct	tgcgttcaat	1020
atcgacca						1028

(2) INFORMATION FOR SEQ ID NO:677

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 755 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...755

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:677

acgcctgaaa	tgaagcagct	catctcaggc	atcaaagaag	taagcaaacc	tttcggggaga	60
ttgcccaaac	acaccgtccg	ctctttgggg	gagaaattac	cttacggggac	gaggaggtct	120
gcgaacggct	tttcgtcagt	cctcgtactt	gcaggactat	cggaacaagg	gcattatccc	180
ctacatccaa	atcgcgggaa	aatcctttat	cgacactccg	acatcaacct	actactgcaa	240
gagaatatgt	caggcagaga	actctatagc	ctgttcaacc	atagcttttg	ctcgtcaagt	300
aaagcttttg	attctctgcg	gaaagcaaaa	ctcttggaaca	ccaatccgag	agtttttgct	360
gtatataaac	agggagcata	gggattatca	ctgggatatt	tccgagggct	tccaatgctg	420
aataatagaa	cctccagcat	ccgctctgct	tgcattcgca	caattggcga	attgaggaca	480
agagtaagat	atcgggtaaa	agttcttttc	ccttcatact	aagatgcaat	attgctccta	540
ggtaataatg	tcagcatctt	cctccatctt	ataagcaata	cctacactcc	atcttttgag	600
agaagaatgg	tatttttacg	aggctcgtgga	gctgtggata	agtagagcta	tctaaacaaa	660
tacttgaagt	ctctatacca	aattttattaa	ggtcggctac	tcttacaaaa	ggtatccatt	720
ttcttgataa	gcatecttac	ccggctctat	gggat			755

(2) INFORMATION FOR SEQ ID NO:678

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 2744 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc feature
 (B) LOCATION 1...2744
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:678

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tcgacggcac tgaaccagaa cgtatcgctg aacgtataga ccaaggctca acgactccac      60
tgccgagtat cgtgattact cgtggaaagg atattttctt gacggctctt ccaatccgga      120
tacattgcgt actgtcggta caagtaccgg cggacaaggt gggtaatcgt ccaaaacaaa      180
aacaggatgg taaaggactg gccagtgcac tggtagcatt ggcaagccat gccacctgtg      240
acggacgctc gtgaaatgcg atatgatatt atagacgagc atgaagaagg gtgcccgggc      300
ggatgaccga tctccaactt gtttacgcag actatgaact cggacagtcc cacaggctgg      360
ctgtaggctc gattgtcatc agatagacga tactgcaact gcaaaaacgc cccaaccgac      420
gacattgttc agaaatctaa acgtttccat tccatatcat tgtattcttc tatgatgact      480
taaacgtatt agcaggggca aaccctactt ctgcgcgata aaaatgttga tgggagtacg      540
caaaaatccc agtgggcacg aatctgattc tccaaaaaac gcttataagc tctttcaccc      600
actgaggcag attggcaaaa aaggcaaatg aaggcacgcc gtcggaagct gcatcacata      660
ttttatcttg atgtatttac ctttgagca ggtggtggcg tagcctcgat aatgggtagc      720
atcacttcat tcagctgtgt gtgggaatac gagtcgagcg gtgtgcatag acctgattga      780
ccgttccaac actttgaaaa tcctttgttt ggtcatagcc gatatgaaga gaaagggaaa      840
tccgtaaatg gagcaaaacg ctgccggatg gcattctcaa actcttgatg acggcttgac      900
ttttatcttc caccaagtc cacttgttga tcatacaacc agtcccttgc tattgcgctg      960
gataatctga aagatattca atcctgcgac tccacacctc gtgtggcacc cagcatcagc     1020
acacatacgc ggagttttcg atggcacgaa tggatcgaat aacggagtag tattccaatc     1080
ttcattcact ttgccccttt tgcgaatacc ggctgtgtcg acaaggtaaa attgagtccg     1140
aacttattgt acttagtgta tatagagtc cttgtctgcc tgcaatatcc gtcacgatat     1200
gcctgtcctc tccgatgaag gcattagcaa ggagcttttc cctgcatttg ggccggcctac     1260
gatggctatt cgaggagtgt ttcgctccaa tccgattgtc cgttctctgc cggcaatagc     1320
tcctcacctt gtcgagcaaa tcgcctgttc ccgaaccgct gacagctgca atcagtaagg     1380
atcgcccaag ccaaaggaat agaattcgga agcgaataaa tatcttcggt attgtccacc     1440
ttattggcta cgactataac cggttttttg ttccggcgag tatctcggcg acttggtcgt     1500
caagagaagt cactccgggt ggttgtctgc gacgaagagg actacatctg ctctctcgac     1560
agcaatatca cttgcttatt gatttcttcc tcgaaaacat ctccgaatt gaccaccaac     1620
ctccggtatc gacgatggaa aactcccgc cgttccaatg caccgcgcgt actgcctatc     1680
gcgcgtatga ccggcctctt cggtacgac ggcttccggc tttgggtaag gcggttgaa     1740
aatgtgctct tgccacatt cggaggccta cgatggcgac taatgctccc atatctattt     1800
ctactctatg attcgttctg attgttgctt gtcaggctac gaccgacgaa ggactaatcc     1860
aatgatagcc gaaggcacga agcagattat ccctgttgcg ccagtctttt tgaccttcac     1920
aaagatttcc aagaaaattt tctttccgaa gaaacgttcc aatcacgcgc ggccattgac     1980
cctacacggt tgatggccgc cccttttagc cgatgattat tcctttttga gaattacgct     2040
ccacgatgat cagcgataat tacggataat ggtcttctcc tccttgaatt cctccacgac     2100
cacttctccg cataggaat ttctttttga gtaatacga gtatcttctc acgaatatct     2160
ccgtaacgaa aaaacgtgcc ggcttgtccg tgagtgcac tttttaaaagt aaggaggaga     2220
tgggggaatg aggctttcga tacgcttctg cagcatccga cgttaaagt gttcgtggcc     2280
gaaagagggt gaatttctgc tttggcaata tattgcgcca ctctccaca agttgttcca     2340
atgcttctct atgctcaggt cgatcttgtt gatgaccaga agtacagggc attccattcg     2400
tatacgcgag cgagaaaaat agcattctta tcagccttct ccaccacgct gtcacataaa     2460
ccagcacatc ggcacccccg agagcagatt cgggaacact cgcatttctt gttggagttt     2520
gtaattggga cgaagtactc ccggtgtacg gaataaacga tttgcatctc cggcgatctc     2580
acaatcccca tgattcttgt ctggtggtct gcgccttggg ggtaatgata gaaatccgct     2640
caccgaaagc agatttatca gtgtactctt cccaacgttg gggtttccaa cgatatgaca     2700

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aatccccgaac ggtgaccgga ctctcttact tgcatttcga agct

2744

(2) INFORMATION FOR SEQ ID NO:679

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 506 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...506

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:679

cgcacgttgt	agtcggtctt	cctataaccg	aatgagagcg	atgaccaatg	atattttcca	60
taatccta	atagaata	aggttatt	gataagtg	attgcaa	atgtttcatt	120
agcaactct	gcaaaggt	agc aaata	aatctgt	cttttggt	c gataaat	180
agcaggtac	gcaaaggt	agc aaata	aatctgt	cttttggt	c gataaat	240
ttatgcgat	cgatgcttc	agcctaagg	c atggagct	gttacctcc	gtcagttgc	300
atcgtgccg	ccggtttgg	ggagtcga	ac tgcata	aggc cct	gtgtaacc	360
ctatcagcg	agccaaat	cgaatgg	agata ttc	ctcccc	gtgccaat	420
gttgccgat	ttcttgag	tcgtgggg	ata tccgc	gaagtcg	caagtgtc	480
ggaatacgc	gcatccgg	ccatctct				506

(2) INFORMATION FOR SEQ ID NO:680

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 602 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...602

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:680

gttctcgctt	cttcatgtct	aaaaaaac	atctgtct	ctccgaca	ata agtttt	60
ttgaaaagcc	ctccgaaag	gagagaat	ccataaag	tcatggaa	ata catcgt	120
tcctgacttt	tttcttgcat	tttttggt	tg caagtt	tttca aattt	gttctcgatt	180
gttttatttt	ttcaggatct	tcattttc	aaa agaata	agaa accgtc	acag ctttag	240
cgagaacttg	gcaaagcgct	catcattaa	aaa atatt	gcaa aaaata	aatctt ggccta	300
aactttttac	taatacaagc	gagagtatt	g cctccc	gctt tgatat	atta taggac	360
tatccaaaag	cctatagtca	aaaaacag	atc ttgttc	tttt cgataa	taataa	420
gtaccatcat	catagatgat	gtccaaac	ctt caacct	cttg tgcaac	tgagcctc	480

tggtgcaaagt ttcaacagct acttcttgtg gaagtgccac cgtttcagtt gcacctgctt	540
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tt	602

(2) INFORMATION FOR SEQ ID NO:681

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 857 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...857

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:681

ggactcaatg tcttcccttt ttcagcaggc aatagcgtct cgaattcttg aacggcatca	60
accccgatct tctgatttat atgcntcacg gacgtttggg caggccattc cactgaaagc	120
ggaaggcatg gcttgcgcaa gcaaaatttt cctattcttg cacttcttta caatcggcaa	180
ttcttcgaga gacttggttg aagacaagca aggtatggta ggcgggcttc ctggcacaaa	240
gcgtacgact cccgagtttg acggagccat ggttcccttt gcattgattg ctctgaaaaa	300
gatgccaaga cagggttaca actcttcaga accatccccg gacactggag gtatttacca	360
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cgatgaagca gctttcgaaa agatcatcat gacgcaagga gctattttta tagctatgcc	600
gaaggcaatc tggcacgctt taccgaaagc ggctatctgc attcgtaccc acaagtgatt	660
tgaagcagtg gatgcaagaa gtccttcacc caatcaaatt caacatttgc aagaacgcta	720
tggagaagct cccgggaata ctattcgatg gagcaaaacg gtagtaggcg catcggtgta	780
accctgtgca agttcggcaa tgctcgttctt ttgcctcagc ccgtacaagg tggaggggcc	840
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(2) INFORMATION FOR SEQ ID NO:682

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9859 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...9859

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:682

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(2) INFORMATION FOR SEQ ID NO:683

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 514 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...514

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:683

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tcttctttca	cagatctgtc	attgctgatt	ttatgaaaag	catgtgctat	agttggaaga	180
cgataaaaacc	gatggtattg	naaccccatg	ctgggagcct	ctacctccta	tgatgcccg	240
aattgagcat	accatgccta	tacagttttg	ggatatacag	tttccaatgg	agccattacc	300
tgattatccg	caatccatgg	ggagtgactg	agccaacagg	agaggagtgc	taagcacaag	360
agattggggtt	atccacttcg	ataatatgaa	gtgttcaatc	tatccaaaga	cgatggcatt	420
ttcgcactcc	gacttgataa	atgagagaga	acttctggtg	catcgcatat	atgtattgat	480
atcagattat	ttatacgggtt	tgagaacgat	ggag			514

(2) INFORMATION FOR SEQ ID NO:684

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2205 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2205

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:684

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ggcgatttct tcttgcactt cgggacgaat gagaggaatg ggaattttcc aaactcctgc      60
ttaccaatac ctgtaaggat tgttcccgaa caagcttttt gagtagttgc tgtataggta      120
gggacttgaa aagcgttagc aatgtcttgg attgatttga tttgagcgca caacatagaa      180
gccagtcgag cagagcattg gtcataatcg tccgttatca atgcacaact actcaaagac      240
ccctcataga tgaacaatc acatcgccct gggttacgat acgccttgca cgtggggcag      300
gtcttcacca ttttcgtaca aacagcctgt aatgtcgccc gactgccaat attagccaac      360
tcaatgtagc gatacttcat atcacattct gggtatagtt gctgtcttta atgggtgcaga      420
cctcaccaag aggagcgaca cgccagtgtg tgccgatact gcattgatgt aatcctcata      480
cttaggcaaa aatactctgc atcaatgcgt ccactttcaa ggaagctctc tttgagtgtt      540
ttacgttgta agcatctata ttggctacaa agtcttgcac ccctaagccg ccaatagata      600
gctctcagca gaggagtaga gggatatctc ctctgtcact tttgcatgga taattcaaac      660
agctctttaa cctgcatttg tatctcgcac ttaaaacagg tacaagtaac tcattcctgc      720
attcgcccaa attgaatgca tttggacatt gccagagaat cgctttttca tttgctccat      780
tccaattttg tattcaagaa cgttacaaga tagggggagt ttaatttgct attagagcta      840
acttaacagc aacagtatct tgagatgtgt tacattcatc aaactcacta tagatgctgc      900
aggatttgct gttttcgcga gtattatatc attctaacga gagctgtttt atgattatcg      960
tcattgtatt ctctagggat cagacaatgt ctgtggtatt aattttcatc cccttcaagt     1020
tagagataca caaaggggga ctccgctgtc ttctcgccct cctcgttagt gtgctgcgat aaatcctgtc     1080
ccttttctta ccactttgca ttctttctgc aggggtgtgt attgcaagcc tcaatcttac     1140
gtctataact caggtatgta cggtcataata gttctgatct attctgaaat attctagctt     1200
agacaacctt acctccgtag cttccgcccc tctaacaaag cgttgtactt tacttcgtca     1260
aaggggcgtc cgcgaaaaag agagtctctc tttcttagcg aactctgcaa aggcttcage     1320
tatccatctt cggtcagtc atcgtggttg aaaagatcgt gcttaacgat aaatgcccgt     1380
gggtgtcaag caaaggagaa ttctcgccct cctcgttagt gtgctgcgat aaatcctgtc     1440
gccactattg tccttgcttg gctcttgcac gtagcaaaga agatgttgta atcctctact     1500
cgtgggcata gctcctcgtc cacttttgca caaagagtac gctcgtctta gtacctgtat     1560
gaggcttaat acattgccat gcaagcctac cactgcaagg atgcgacagc gatcggcatg     1620
tattcgcgca aagctttgtc gctgctgttg ttaaaacgcc cttgagtaat acgatagcca     1680
tacgacgcgc cggcttgaga aaatcaagat tacgcctaca aagaggatgt ctcggtcatc     1740
attcccagct tgcttgagct tggttttcga tatgtacctat cactcatctg atagatgggt     1800
tctcctgtat taggagagct tcagaaaagg tcggctcgcc ctccacgatg gttgctccct     1860
tagggctatt ttacaccttt cgagagacat actacggctc atatcgctact tgcaagtata     1920
cgactctcct tgacctctcc cgcaaagggt gggttagcca cacaatatcg aagggtgaagt     1980
cacgataact gtccttgctg gttctaagct tttgagtttc ttccaaccct cgaaataagt     2040
gtcttgccaa tcctcacttc taagttttgt tcccatcggt catagtcgag cgtattgagg     2100
gttagcaatt ggtctgtcca tcaccagcaa tgagattgag cgtgcgagcc acacgtccgc     2160
cttctcgtca aaatcaatgg caaacacatt gncattcaca taatc                      2205

```

(2) INFORMATION FOR SEQ ID NO:685

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 466 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...466

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:685

ggtataaaca	accttacggt	tcatgtcgaa	cagagatacc	tgacgacccat	agctccggct	60
acatagataa	cgccattctg	aacataagca	ttagcctttc	gttggttaaga	acagcctcaa	120
caccttcacc	cttcttcaaa	tgaacaagac	atagatgttg	taatttaagg	taggaactgc	180
ttgatgaaga	gattcgacgg	agggaaagta	gcaccacccat	cttctgatat	agaaaccaaa	240
tctcctaacc	atcaacggca	gggccctgat	cncatccgat	aggatgtcca	cctgggtatt	300
agcaatataa	ccaactatgt	aattcttgcc	ggcttcaatc	ttgcactagt	cttgagagca	360
agattgttga	tgctctgcat	ttcgggatca	cttcttctga	ttgggcctaaa	atggtcatat	420
catcagccca	gactgcagat	ggtacttgca	cgctttatat	ccaggg		466

(2) INFORMATION FOR SEQ ID NO:686

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 784 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...784

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:686

gcgtacgacc	ctttcgatgg	ggcataaaca	acgaaagaaa	acgagacaaa	acaaaaaacg	60
aatatagaat	tatgggaaaa	atcattggaa	ttgacttagc	acaacgaact	cttgtgtctc	120
tgtattggaa	ggtaacgaac	ctatcgat	ttgacttagc	agggaagcg	cacaacgccc	180
tcggtagtgg	cttttgggat	ggtggcgagc	gtaagggtgg	cgatccggcc	aagcgtcagg	240
ccatcccaat	ccgaccaaga	cgatatactc	tatcaaacgc	ttcatgggcg	aaactacgat	300
caggtttcca	gagaagtggg	gagagtggca	ttcaaggtag	tactggggac	aataatactc	360
cgcgcgtaga	tatagacggg	cgtctctata	cgcgaggaa	atttcggcca	tgatccttca	420
gaagatgaag	aagacggccg	agactacctc	ggtcagggaag	taacggaggc	cgtgatcact	480
gtgcccgcac	cttcaacgac	gctcaacgct	aggcaacgaa	agaagcagga	gagatcgccg	540
cctgaaagtt	cgccgtattg	tgaacgagcc	tacggcagct	tctctggcta	cggtctggac	600
aagtcgaata	aggaatagaa	gatcgctgtc	ttcgactggg	tggcggtacc	ttcgatatct	660
ctatcttggg	attgggagac	ggcgtttcga	agtgaatcgc	accaacgggtg	atacgcacct	720
cggaggagac	gacttgacca	cgtgatcatt	gctggctggc	agaagagtca	agtcctcaaga	780
aggt						784

(2) INFORMATION FOR SEQ ID NO:687

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 713 base pairs

(B) TYPE: nucleic acid

- (C) STRANDEDNESS: double
(D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...713
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:687

cagatcacga	agaccagcgg	gcactccctt	ttgggcatag	gcgatttata	tcgccaagca	60
tcgtaatggt	cctgtggatg	atgtacgttt	gcgctccgag	cgagttgcc	agttcctacc	120
tcttgaggcc	gagagcatgg	tcaaacgcat	tcccgtatcg	gaggctcacc	cgtgaaaatg	180
ggtgtcggca	acggatgttc	gcccctcccc	tacctccacc	gaggacaatc	ccctcctttc	240
aggccctatt	cttcgggcac	atccgaggcc	gatttccctg	ccgaagcatc	gggatcgaca	300
accctttctg	atattatcag	gaaacgatat	tgcataat	tgaccaatat	acatggctca	360
ggctcaatta	gagcctaata	tattagccat	ccttaaaaag	cccttatggg	acaactagat	420
agggttcggg	gcaaagacga	accacggtat	atagacagat	cgaactgagg	ctaaacacgt	480
gccaaaaaag	tttcaacaac	gaagaggagt	ttggaatgat	tccaaataag	caagtgaag	540
aagtggacat	tgaagtcgaa	aagttgagga	tacggacttt	ttcaagtcaa	atatgatttt	600
tggaagagaa	gataacgata	tatatacaaa	cagtttagat	aaatatatag	atcgttttcg	660
ttttgtatat	aaatcgtttt	caattttata	tagatcgaaa	gtcattttcta	gag	713

(2) INFORMATION FOR SEQ ID NO:688

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 898 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...898
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:688

ccagaggaaa	gcaagggttaa	agatgagcgc	aaaagcttat	gccaatatca	tcaaagggtga	60
caaagatacc	aagatgcata	tcttcgaaca	ggtaaaattg	agcttcgctg	tgctgatgct	120
ttgaatatca	actattcggc	tcgtaagaca	ccaaatagta	tccttgtaga	agaataaata	180
cccttataaa	aggctgggat	gaggaaactc	acgacacagc	ctttttcatt	acttcactgt	240
cataagtttc	cttagcagtt	gtaagaatgt	tttttcagcc	tctgactaat	agaaaatata	300
cggaaatggg	ttttttgtgc	aaaaatcagc	ccgaaaattt	gtttgtaacg	taaaagcgga	360
taactttggc	acagaaaaag	gtttatgaca	gaatccatcc	gcccctcctt	ctcatagata	420
cctctactcg	cgtttgctca	gggcgggttg	tgctgcaggt	actattatct	cacaacgggt	480
tagccatgtg	gcaattcgca	tgctgctaac	atcggcggtat	tcgtacaaga	ggtccttgacg	540
aggcaatagg	cttaggagtg	aagccttcca	tagtagctct	aagttccgtc	ccggatcata	600
taccggacta	cgcactcgat	cgtccattgc	caaagggtat	gctttggact	cggaataaccg	660
cttggtgtcg	ctcctacttt	ggagttattg	ctgaggctgc	acgaccactg	tctcaacctg	720
attggttgat	ttgcctatga	tcgacgccag	acgtatggaa	gtttatacacg	cactttttcga	780

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ttccaaggta aagcccttac tgatacactg cctttggtga tagacaatga ttcttttccg      840
aagaactcaa aagcgcaata tcttattcgt tggtgatggt gcgaaaagtg tcgcccct      898

```

(2) INFORMATION FOR SEQ ID NO:689

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1143 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1143

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:689

```

cgcacggcaa tctgtttccg gcacgaagca aagatgctcc ctccgataat atcagagaga      60
gcattttcgg aacgacgttt ctgctcataa caaccggcca tgcatagtcc aacgatgcca      120
aaagctgcgc cagccgatcc acaccttggtg cagaggcttg tccagcatag gcttcacaaa      180
catattcagc tcggcagcag ggtaatcttc agtctggtat catcgggtgc agcctctttg      240
agctgatcca cacgttgaaa ggcatgggag agcgttctgc ctggaatttg atcagtcgtc      300
ctgacgacgc tctactattc gcaaagtaat ctgccccacc ggatcactga tagcgtacag      360
ctatcactgt ctatccccgt cagcttaatc ttccctcggg cagtttatcc tccatcccct      420
tgagattgga gaggtccgac atttggaata gacagccgag agaggtgctg ctatactttt      480
tatttcactt tgtattctgt catacttttag ggtctatata gtttgtgtac gaagtgcgtg      540
tccgaggaga aatcagatac cccacgtctc gggactcttg cgccattccg aagcagctcc      600
acattctcgg cagaaatata gcccgctccg aaggcttttc tatcacctga tcgtagtcgg      660
taagcgttac aagcttgact tctgcttctc gaaattctgc tcggccatcg ggaatccatg      720
cgtatagact ggcacatacc caatactctg caaccgaaat tgcgtatggc ttctgctgcc      780
ttgagctgct accccccgta gagatcaagt cctcgatgac taccaccttg ctgtcggctt      840
gagttcgccc tccacaaggt tctccaatcc gtgatccttg gggacgagcg tacatacaca      900
aaaggcaatc cgagcagatc agccaccaat gtccttgagc tatagcccct gtagctacgc      960
ctgcaatagc ctgcacatca cgaaagtttc ggaaatcacg cgagccaatt ccaatttgat      1020
aagagagcga tttggggata agacaacggt tttctgttgt cacaatagat aggagcttcc      1080
aaccgaagc ccattgtgaag gggttgttcg gctgcagttt gatggcttca cctcgatgag      1140
ctt

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(2) INFORMATION FOR SEQ ID NO:690

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 595 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...595

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:690

gggactgatac	aacgacgatg	atatacctccg	gagcaaagtt	gtctactagg	ttacagactg	60
gggtgtgatg	atcacctgcg	actgcagaga	aacactctga	taagagctgc	gagttttattg	120
atcgccatag	ggtgtaggcc	aagctcagct	catcaataat	aatgctccga	ggtggctcag	180
gctgaagcaa	aagcgtgcaa	gacagatgaa	gcgaagcgtg	ccgtccgata	gctgataggc	240
gttgaataga	catcctccgn	cccttttttg	ttccattcta	gctggatcgt	actccattaa	300
gacgattggg	cataaggtta	aaaccctcaa	agaatggagc	aacgagcaaa	ccgtacgctc	360
tatgcatag	aagtgccttcg	ggtgcttttg	ttgaggtaat	acaagaaagc	tgcatattg	420
gcaccgtcac	gcctaaggct	agattgtcat	ctacacgaca	tagtgctttc	ataggggatt	480
gattcctgtg	catggaagtg	gtagatcttc	aatgcttgga	tcagttcatt	aacaaaatag	540
cctgtcccca	attgtaatgt	taaaggagac	tcactacat	cgcgctcaat	tcacg	595

(2) INFORMATION FOR SEQ ID NO:691

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 532 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...532

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:691

gggacggtag	aggcataata	tcttcttcgt	ttagatgaga	ggagagtaca	cctccaaatc	60
gccttcgggt	tgtcctccct	ccacatcgtg	aaaaaccaag	agaggtcaat	ccatggatct	120
cccgatacta	tccactcgcc	taaaagcacg	atacgacttc	atacaaagca	tcggcttttt	180
cattttgtgta	aagcaagccg	ggtaggcccc	tgccatacct	gacgcattga	agagtttcgt	240
ccacgaaagt	atgtgacaag	atggcctatg	gaaaggtttt	cagcatggac	attagctctc	300
cgaaaacgat	aagctcattg	tcttgcgat	caagtcatca	ttcgcttggc	attaggcgat	360
atgtacaagc	agtctacagc	aaatacagcg	gaacaggctc	cgcaaagcga	gtctttcggg	420
tcgccgggact	aagagcaaaa	gataagataa	gcaattgtgc	agtcagcacc	ctcaagaaca	480
tggtcagagg	tagaccgtgg	cgtagcctac	ggccggagca	tcgnggttag	tc	532

(2) INFORMATION FOR SEQ ID NO:692

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 571 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature
(B) LOCATION 1...571

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:692

ttcccttcgt	tgagtaatag	cggatgtgtg	tgccgtgctg	caacagccgt	tcatcatttc	60
gctcgatata	tatgccttgg	gatgcttttg	acatcaagct	atgaagtcga	tgccgagtcc	120
gccggtcaga	tccaccactt	tggtccctct	cttatgaaac	ggcttttgta	cgaactcgtg	180
acagctccgg	aggattctcc	aaagaaagcc	gtgaaggaat	atacaaagaa	ctgataccgg	240
cccacgaggc	agcttgttcc	tcagacgagg	ccaaagttct	atctgggtag	ccacgcagcc	300
cgatactccg	gaggaatatc	attgctcccc	aacagaattc	tgtgggtgat	tggttggcat	360
agagcttaac	ccatcgcgta	atggcgagaa	tcctttttcg	gcgaatagca	tcgtccgtac	420
gtatactgaa	agaggggaacc	ctcgaatgga	ttccctcaga	gactgtgtga	ccgcgacagg	480
attcaaacct	taaccggctg	atccgtagtc	agctactcta	ttcagtgagc	tacgcggcac	540
gcaaaagctg	aacattgagg	agaaaaagtg	a			571

(2) INFORMATION FOR SEQ ID NO:693

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 968 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature
(B) LOCATION 1...968

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:693

tttgtcctca	aattcgacgt	tttatccctt	tggcctgata	aaccagattt	agcctactat	60
ggccgggaag	aaggtgctct	aaagcgggat	tggcgagaca	ggatcatctt	acagcagccc	120
gtgagatgga	taggcaaacg	cttgagcaga	agaagagaaa	gagggtttgc	ccaagacgaa	180
tgccgaggat	tatcagtcgt	gatcaagctc	gactttaccg	acttggccat	atccgtattc	240
atcaagagca	gagaaagaca	tcagctaagg	atatgcagcg	gaaagaggct	actacctcag	300
tgatatgttg	gatatgtatt	ggancaatat	ccctccgagg	gagaaatagg	agataaggat	360
acggagcaaa	cgagaagcac	tattcgtgaa	acaacagaaa	gaagagaccc	atccaggatc	420
tctacctctc	ctgtgcccac	gggataaaga	tttgacggag	tctcattata	tccatttggg	480
cacgctggac	atgaaagcaa	gactacggcg	aggattgcag	cctatccgtt	gaagaacggg	540
ttatcgataa	agagcgggtg	cgagaagtat	cgactcgtcc	ctacaaactc	tttccgtcaa	600
taaaaatctg	gctactgcaa	aacagatctt	tattttccatt	ccaaagagga	tcagactgaa	660
ctggagacct	gtctgcaatt	tttcaaccct	tggagaagaa	tggtcagatc	gagatctact	720
atgataagtt	gactagtttg	aaacacctat	tcaccctgaa	ataagaaagc	gtattgtcga	780
agccactgta	taatcgcttt	gatcagccaa	cgctatctgg	ccacggatta	catctggatc	840
atgagttgcc	tgtatttcgg	gagtataaca	agaccatagt	gcgatattga	tcaagccttg	900
tacattcgaa	gaccatgagt	tccttcggag	atatttgctc	agaaagctca	aataatcaat	960
cttgaaaag						968

(2) INFORMATION FOR SEQ ID NO:694

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2843 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2843

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:694

tgggtacggg	caagaccact	ttcatcaaag	ccgtatgcga	ggagctgggg	tctcggacgt	60
tatcaatagt	cccacctttt	cgattatcaa	cgagtaccct	cggatcagac	gggcgaactg	120
atctatcact	tcgactgcta	ccggctcaca	agatagaaga	cgccctgaat	ctgggtgtag	180
aagactatit	cgatagggtg	gtctctgctt	tatcgaatgg	ccggagcttc	tggagccgat	240
actccgaacg	atacggttca	tgtccgaatc	gaagagctgg	aagacggcaa	gcgcggctta	300
catttctaag	cctgctccga	tgtcgttcgt	cattcgggac	ttcatctcat	cctctttgce	360
atagtcggtc	tggtttcgct	actgactgct	ctctctgtcc	ggattggcta	ctgagcagcc	420
gaggcgcacg	cattttgatc	atgccttcgg	caagcggagg	gcacgtatct	tctatattat	480
aataggagtg	ccttgctgag	tgctgcggct	ttcgggctga	tcaaactctg	aaaagtgtct	540
gcagtaaaat	cgatcatcata	aaagagaccg	cccctgctca	gcctcatttc	gtatattcct	600
tataacctct	tcaaggggaa	acctctacct	ttacgggtga	atcaatttca	gaccgatgga	660
ttacgaaata	gagaacaacc	atgccgcagt	attcgcaggg	gaagtatcga	agtgatatgc	720
ggctccatgt	tcagtgcagg	acggaagagc	tgctacgccg	tctgcggaga	gctaagatag	780
cgcgacagcg	gtggagatat	tcaagccgac	catcgatata	cgctacgacg	aaaggatgtc	840
gtttcgcgat	acaagaatgc	tatcgcttcc	acccccgtgg	acattcggcc	aatatactgc	900
tgctatcctc	ccaagtggat	gtggtgggga	tgacgaagcc	cagttctttg	atgagggtct	960
tgtggaagta	gcccagcaat	ggccgatcag	ggtgttcgcg	ttgtgatcgc	cggattggac	1020
atggactttg	acgtcagcct	ttcggaccta	tgccgggctt	gtgtgccata	gccgactcgt	1080
gaccaaagtt	catgccgtgt	gtgtggaatg	cggccgattg	gccagctttc	tttccgtcgt	1140
gtccaagcgg	atcagcaagt	gatgctgggc	gaactgcagc	atacagtccc	ctctgcagaa	1200
cctgctacag	gaaatgcagt	tctccccaca	aacagaagaa	atccattcga	caatatgaat	1260
agcagacatc	tgacatcaca	atcattgccg	gcctctccct	ctttgtactg	acattgggcg	1320
gctctccgta	gcccacaacg	atcgcagctg	gactctcggc	ggaaagctct	ttcttcggcg	1380
tggatacaac	gttcggccga	atatcaagcg	ctttgcattc	agcatacaac	atcgctacgg	1440
aaagagtggg	cgctctaccg	gcagaacgta	acaaggagat	aggccttatg	ccatcgtaac	1500
ggacatagac	gaaaccattt	ggacaatacg	cctaactccg	tgtatcaggc	tctcaggggc	1560
aaggattaga	tgaagagact	tgggggaaat	ggtgtgcaca	ggccgatgcc	gacacacggc	1620
aggagctttg	tctttcttcc	tccatgcagc	gaacaagggg	atcgagtctt	ttacgtcacc	1680
aaccgcagag	acaatctgcg	cgaagcaact	cttcaaacct	tcagcgttac	ggattcccct	1740
ttgccgatga	agaacatttg	cttagaccce	tgggccatcc	gacaaagaac	cccgtcggct	1800
caaaaatacaa	gaaagtatga	aatagtattg	ctcataggag	acaacttggg	cgacttccac	1860
cattcttcaa	tacgaaagaa	gagtccggac	gcaaacaggc	tctgggcctg	aagccgggga	1920
gtttggccgg	cacttcatca	tgctgcccaa	tcccaactac	gatcttgggg	accggcatgg	1980
tacggcggga	agtatccgcc	actgcccga	gagacaaagc	acttaaaca	ctgcactcac	2040
agaacagcag	atagctccta	agcaaacaca	tcgaatagac	agactcacac	tatggacaac	2100
aaacgacaag	caaaatagaa	agactgctcc	agaaagaact	cagcgagata	ttcctgggga	2160
tgcgaaatcc	ctgccggggc	taatagtttc	ggtaacgaac	gtacggttaag	tcccgaacct	2220
agcatcgac	gtatacacct	gagtatatcc	ccatcgagaa	gagcagcgag	attccttgaga	2280
gcatcaaca	caatacaaa	acgtccgtta	tgacctcggg	cagcaagtcc	gtacccaact	2340
gcgcaagata	ccgatttgac	attctacata	gatgactctc	tggattatct	ggagaatata	2400
gccgtttgct	caatcaataa	gaaacggctg	ctctctatca	agacgctgtg	acttcccctt	2460
tttcatagcc	cgccgttact	tgttctcccc	caaaagatta	gtgcgggtcaa	tgtggtttcg	2520
ctcgtttcag	cgatagctgt	ctgcgtggct	cttcggcctt	ggtttgtatc	ctctctatct	2580
tcaatgggta	cgaagcttga	tcatgacgca	ttcggcgagta	acggatcccc	ctcttatgat	2640
tcgttcgcag	acaattcgct	gataaaggca	gatgataaaa	ctctgctcac	agctccgaag	2700
cggaagggat	cggttcgtac	agctttatcc	tcaccggaga	aggtttgtta	agacgaagta	2760
tcgacagcag	gctgtttctc	tcatgggtgt	ggagatcgct	atccccgcac	tgtgaagata	2820
gactccatcg	tctttgcag	caa				2843

(2) INFORMATION FOR SEQ ID NO:695

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 786 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...786

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:695

gcttcttgaa	tgccctccaaa	gcctccggct	tgctactgtc	tatccagcag	ctttgtacag	60
gctgatcggg	tcccaacgac	actgcgctcc	gtattcatca	gcagacggta	ttggatcact	120
tcgaactgta	gctgccccac	ggtcccgtaa	tcttgcgccc	ggtgaactga	ttggtgaata	180
gctgtgccac	cccttcccca	tgagctggtc	gatccctttg	gccagttgct	tggttttcat	240
cggatctgat	tttcaatgta	cttgaatagc	tccggcgaga	agcttggcaa	accgggaaat	300
gaagctcttc	gccggctgtc	agcgtatctc	caatctgaaa	attccggtat	cgggcagacc	360
gataatatca	cgggcatagg	cttcatccac	cgctccttgc	gctgcgccat	aaaagccgta	420
ggactgctga	atcggaactg	ttgccgaggc	ggatatgctt	gtagttcgta	tttcgttcga	480
accgaccgga	caaatcttga	cgaaagcaat	acagctgcga	tggttgggat	ccatgttgga	540
tgtatcttga	aaacaaaacc	cgtaaattcc	tcctcgtgcg	gatccacttc	ctctccactg	600
cagccaccgg	ctggggagaa	ggggcaatct	cgacgaacag	ttcagcagct	cctgcacacc	660
gaagttgttg	agtgccgaac	cgaaaacacc	ggagcaagct	gtccggccag	atattcctct	720
ttgtcgaaag	gctgaaaaca	ccatcgatca	attcgatgtc	cgnacgcaac	ttctcagctt	780
gagttc						786

(2) INFORMATION FOR SEQ ID NO:696

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1414 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1414

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:696

gaataatggt	attaaaggtt	gataattcag	tatcaactga	ccggatgata	tcgatagata	60
taattgaata	atagaaaatc	tgaaagaaaa	atccgcttat	atcgacacaa	caatggagga	120
gaatcttttt	atgtaagcca	tgctttgcct	aatagcatga	gtatgaggtg	gaagtggcaa	180
aaaaaacaaa	atcggcgaag	agagggaaac	agctctcttt	ggccgatttt	gtcttttcgg	240
taataaacaa	agtcttttta	tagaccgtgc	tcgccccaaat	aacgctctgc	ttcgtagcag	300
ccttgcaacc	tgatccggca	gccgtgatag	cctgacgata	gtggggtcgg	caacgtcgcc	360
ggcagcaaat	acgccgggaa	cttttgtgcg	cgggacgaac	cttccgtcag	gatataaccc	420
acttcgtcca	agtcgaggtg	gcggcggaag	tcttcgagtt	tggcgtatga	ccgatagcga	480
ggaaaaaac	tcgatggcaa	tgtccaccat	ctcttcgtcc	ggctctcctt	tgcgtttcac	540
agatgagcac	cttccacacc	gttttcgccg	aatagaccca	cgggtattagt	tcgaagagaa	600

cggttatgtt	cgccgtattc	atcacacgct	cctgcatacc	ttggaggcac	ggagatagtt	660
cttgcgtacg	atcaggtaca	cgtgttagcc	agcgatgcc	gatagagagc	ctcctcgcaa	720
gcagtatcac	ctccgccact	acggctactt	tcttcttgcg	atagaaaaat	ccatcacagg	780
tagccaagca	gaaacaccca	tgccggcata	tttggcttca	tccggccaagc	ctagtatttg	840
gctgtggcac	ccgtggagat	aataagcgta	tcggctgtga	ttccttttct	ccgtctatcg	900
tgatcctgta	aggagccttg	ctcaaattccg	ctttgtagcg	ataccggaac	gaatgtccgc	960
tccgaagcgg	gttgcttggt	gcgcaggtct	tccatcagtt	ccgtaccggg	gattccttcg	1020
ggataacccg	gaagttttcc	acctcggtcg	tagtcgttag	ctgaccgccg	ggttgtatcc	1080
ttcgtagagg	atgggggttg	ggttggcacg	agaagcatag	atagctgggt	atagccggca	1140
ggtccggaac	cgatgatgag	acagcgtgca	tgttctacat	aatgatcggt	tgtatttggt	1200
cgttagtaag	tattgttatg	gatgaacaaa	gatagtagcc	ttttcgttta	ccgagcctat	1260
ccgtcgaagc	atacaccgct	ctattttgcc	gaaaaactgc	taacaaaaaa	gactgtgcta	1320
cgacaatcgc	aacacagcca	aacacattaa	caacaatctc	taaagtcaga	gcgaaagccg	1380
gactcgaacc	ggcgacctat	tcattacgaa	tgaa			1414

(2) INFORMATION FOR SEQ ID NO:697

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 453 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...453

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:697

gctccttgcg	agcattctcg	tgtttggtc	gatggcattc	gccaagttc	caaaggaaat	60
gacaagtcta	aagacgaaca	catccttacg	tgggcgttcc	ggaagagttg	gtgatcgata	120
ataacagtat	tgtagctact	tataattttt	attgactcca	tttaatggaa	tgaccatggc	180
ctgcgcttct	ttcttcatgt	gcaggatttg	ttgccttatg	tgggctatac	gatcaataga	240
atagattcca	ccctacggca	gatgagaaga	actatgagca	ggtggcagcc	agcagttcta	300
catctgtata	tggggcaata	aggaacagac	agaagtcctg	tacagcaggc	tctgcccacg	360
atccacaagg	aggattttgag	ctttggctat	gggtggacgg	cgaggaagac	tattacgatg	420
agccgatgta	ccttgccgaa	cggaaacgcc	ctt			453

(2) INFORMATION FOR SEQ ID NO:698

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2195 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...2195

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:698

gagaaaggcc	tgcgcgtttg	atttcgatcc	gtcgaacttt	cttaagtagt	cgcttgtctg	60
cacttatctc	tgattaagg	acttctactt	tgttcagggtc	tcattgacga	cagcatccgg	120
agtcaaaacta	ttagcctctg	cctcatactg	agtccgatac	ggtgacgcat	cacgtcatga	180
catacggcac	gtacatctca	ggaatcacat	aacctctatg	cttgatgaag	gcgtatgcac	240
gtgcaccaat	gctaaattga	tagaagctcg	gggcgaagct	ccgaaactga	tcattctttc	300
agagcattca	agccgaattg	ttcgggtag	cgcgtaggcaa	aaaaatatca	actatatatt	360
gctcgatctt	ctcatccaga	tacacctgcc	tttcacttgg	cgcgcttcca	gtatttcttc	420
cgtagtgatt	atcggacgaa	ttctgcccag	cggccaccga	tattctgacg	aatgatctgc	480
atctctctct	cttttgggga	tagtctatca	gcaccttcac	catgaatcgg	tctacctgtc	540
ctctggcaac	tgataagtac	cctcttgctc	gataggattc	tgggtagcat	tacgaggaaa	600
ggctcaggga	gcttgaaagt	cgtttcccca	atggtaactg	tctctcctgc	atcgcttcga	660
gcagagcact	ctgcactttg	gcaggacacg	gttgatctca	tcagccaaaa	taaagtttgc	720
gaaaataggg	ccttgtttac	ttgaaattcc	tcccgtttct	ggctgtacat	catggtacct	780
accagtcagc	tggcaagagg	tccggtgtaa	attgtatgcg	gttgtaactg	gcataatcag	840
tccggccaga	gttttgatag	ccaaagtctt	ggctaattccc	ggactccttc	gagcaggata	900
tgtccatcgg	ccaacagtcc	gatcagaagc	gctccaccaa	atggttctgt	ccgacgatat	960
tctgcgccat	accgtgcgtg	tgagattcac	aatgagctt	ttctgctcaa	taagctctgt	1020
gagagcctta	tgtcaatggg	tttcactcat	ttttttctat	atcttttctt	gctaaatata	1080
atgaagatta	tgacacccat	ctcatgttga	gatagacata	tagcatctgc	agggtttaag	1140
cgcgaagttc	agccaacggc	cagcattcgc	tcgatcagag	caaagccttc	tccctgattt	1200
cagcaggcac	ctttacttca	taacgttggtg	gcggagagct	tccaagacct	cccacaaacc	1260
tgtttgtttc	atataaaaaca	gcggttgctg	ggttgaaatgg	caataaacgt	tttacccgga	1320
tttctttccg	caacacgtgt	agcgtctccg	gctctgtcgc	aataacaaac	attttttgtc	1380
ggactcccga	gcatgattaa	gaataccggc	cgtggaatac	aaaagcagcg	atcgctactc	1440
agcactcgtg	gcgaatgaga	gccctcgtc	ccggatgaat	gagaatatca	gcacgaggat	1500
acagctccat	agcctctaaa	tggattcttc	cgtaattcgc	tcagtacga	aacacgaagc	1560
attccaaatt	ccatctcccg	tctgtctttt	cgcgagatat	aagctccaag	gtttctaccg	1620
ggccaaagag	aatttttctg	tctcgaggca	agctctccac	taccttagtg	cattgctgct	1680
tgtacagcag	tagtccgtcc	aagcctttac	ctcggagtcg	tattgacata	gctaacgatg	1740
agtccatccg	ggttctgctc	cttcaccgac	gcaagccttc	agcagaggca	ccttcggcca	1800
aagaacaacc	ggctattttc	tgggagtgag	gatagtcttc	tgccggcga	taatcgaagc	1860
cgttcggcca	tgaagtggac	tccgcaaaag	agtatcgtat	ccgcctccgt	acggcagcct	1920
gacgggacag	accaagagaa	tcgccgatat	aatcggcaat	tctgtcacct	cagggcgctgc	1980
atagtagtgc	gccaaaataa	tggcattcct	tctttcttga	gaagttctat	ctccttaaga	2040
atatectttg	tttgcataaa	aaaccaactt	aaagcttact	gagtaaggag	gaaattcatg	2100
ctgatgtcat	ggccgtaacg	ctatgagtca	aagcgcctat	gctgatgtaa	tcaacaccgt	2160
ttctgccaca	ctttgcagcc	gttcgagtg	catat			2195

(2) INFORMATION FOR SEQ ID NO:699

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 515 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...515

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:699

tctcctccga	ataaccctcc	gtgtggcttt	cgagcaatct	gtcataggct	cgttataagc	60
attctgcccc	ttgtagaata	cattatagcg	cgtagtgaat	tgtgatagaa	tcgggatgcc	120

gccgtattct	tcgatgtgga	gcaggacgca	taccgaatac	gacagctacc	gggatgagca	180
gatagaatac	gaggagtata	gaaatctatg	gctacgcatg	gacaaaggac	ttaatcgttt	240
tggtctaaagg	aacaaggcca	ccagcaccag	aatgatgaag	gctccggaag	ggatcccaac	300
ctataactgc	cccagagacc	cgtgaaggct	gccaaagccg	ccagattaca	gaaccgaaca	360
ggatcgaaga	gaagtgcgaa	gtgaaaagat	tctgatgctc	tgaggaaggg	tcaggagcga	420
catcagtagc	atgataccca	caaacggata	ctgagcacia	taccacacagc	cacagccacg	480
gacattaagc	tcttcacgag	gtgaacccta	attcc			515

(2) INFORMATION FOR SEQ ID NO:700

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 540 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI--SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...540

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:700

ggctgccttg	tcgccattca	tatctccggc	aacaattacg	atatctgctt	tttcggtttg	60
gctttcccg	tcttccttgc	tgctcaggtc	gggatgggtat	atattgggta	ctgcgaggca	120
agattgtttg	gtttatagga	aatgcccttt	gttgcctttc	acatggggca	ccatcgacac	180
ttatataccg	ctgcatgaaa	gataaaaagag	tcctcgattc	cgcagtcgcg	tatcaagggtg	240
atgactataa	cgtcaaggga	ttcgattttc	gtgctcacia	ttcagagaat	cccatcctat	300
tctcaaatat	atcaaaggaa	gtggagccga	tatcgatgc	ttgaagaggc	agtactgagt	360
cggaaaagca	actctcgtaa	tgtggggcta	cgactttcaa	gaaatatctt	cccgaatatc	420
gctacatgga	actggtcgca	tctcgagaag	atagaaaagg	cagcggcctt	atgctcctgt	480
ccaaatatnc	atctcggatg	tgcaccgcat	tccataccga	gtccgcattc	atggcttcaa	540

(2) INFORMATION FOR SEQ ID NO:701

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2030 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2030

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:701

atatttggggc	tgaacgacat	gtcgctttca	ctcactttta	tagggcctgc	cactgaaatt	60
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cgggatcatt	gtcgacaaaag	ttcgacaaga	aaccgatacg	ctttttcccc	cttgttttatt	120
catttcgaat	accacaccca	ttagcggcag	gcattgtgac	ccatggattc	agaggtgcta	180
cccaatgaga	gatccacttg	tcaattttct	tctctccatc	ttgactgaag	agtaagtttt	240
tattgaattt	tgccctccat	tcagagagaa	cacatagtc	acaaaactta	tttttgcgta	300
ttgttgaagc	cgggtgtaagc	gaaagccaaa	gcaaaagggt	tgcaccattg	ttaagagaag	360
aaggcgaaag	atagttggag	gctatatcca	cacgtacaac	tgcacattgg	agaagtcttc	420
cttatcacg	agtttcgcat	ttgcgcgttg	gcacgcgcac	tgaagaccgc	aactctactc	480
ttatatcctc	gggcttattc	atgagctcta	ccgaccaa	cttgatgtcg	gattcattct	540
acccgttacc	acgatatcga	agtcttga	ctgataatca	tccgatggtc	ccaatccctc	600
aacttttggg	atgtggcacc	ttggtctttg	gagcggagat	cttcacattg	ctattgccgg	660
tgctgtatcc	actgtgggtc	attacaagat	ccatccgttg	tccgccacac	tcctcctcgt	720
ttgtaccagt	ttttctgatt	gtactggacc	accttgacat	catctcctcc	catcgtctgc	780
gcttggcgag	aggacagagg	gttgcgacgg	cgaaagccgc	caccacgaat	ttggtaaaac	840
ttttgtcttc	atagtttttg	tctttttttt	gagactcaat	cgacaggagc	cctccagtct	900
cttgaattgt	tgattagcga	ttagtttgtt	acttgatttt	cacgagagca	cgatggctca	960
tgattctctc	ttcaccgttt	cgttccctgt	ttttactttt	tactgattgt	attatcgttc	1020
acccatggca	agagtgtcca	aaatcgaaat	cggcaattcg	cacaacgcgg	aatgcatgtc	1080
ggccttctct	gccacaaagg	aacggagtgg	cgaggagata	tacttggcaa	atcgcgcatc	1140
ttcttggaca	aatcacgc	ttagcaataa	ggaaacacaa	aaaacatctt	cgttttggac	1200
aaatcgcgca	caaaaaaagc	gtaaactacta	ataaagaaga	tattacgagt	acaagtgtct	1260
aaaagctctt	ttcgatgtct	tttagagcgt	ggagaagtat	ccttttgcaa	ggaaaaagag	1320
atcgccaatt	cgctatcgga	tagagatg	gaatgtctcg	accaaggagg	gcgaagaaac	1380
aagaaaagaa	aaacaaaaga	gatgtcttgc	gcactgtcaa	aaacatctac	ctttgcaccg	1440
tcttaattag	gtagggcgac	aatgaatgat	tcactgtaag	acgatggcga	gatagctcag	1500
ctggtttag	cgcatgatta	taatcatgag	gtccccgggt	caatcccggg	tctcgctacc	1560
gaacaaaagc	atgccgagac	caagtgtttc	ggcatgcttt	ttatgtttata	tacctaaatt	1620
ggggcaatag	aaactgcac	tgactccaac	gggtaagaaa	acaggtcatc	gtcccaaact	1680
gaaatgcagc	agattatatt	atgattggag	agagtggctc	atgtaaaccg	gaaggaagcc	1740
atcaataagg	ttaacgaaa	acctaaaaca	ctccaatgga	attttggctt	atatttgccg	1800
gcacgttcac	caaaaacgaa	caaatatgag	aatgatgaaa	cttacagcca	tgatgctggc	1860
cctttgtcgg	cactggcatt	ctcgtcttgc	aagaaagacg	aaccgacaac	gtggagaaga	1920
cccaatggga	aagaatgctg	accggcacag	aaatcaataa	atcatcgc	tgatggatgg	1980
agagatcgac	gcggactctc	aactaccgga	tcggcaaaac	taaaattgga		2030

(2) INFORMATION FOR SEQ ID NO:702

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 837 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...837

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:702

gcgatttatt	ttgtggggtg	caattcatgg	agtggcactg	gccgtacaca	actctgggtgc	60
gagatctttc	cgctgaatcg	ggctatgtcc	acggatatcc	tttttggcgc	agatggctcg	120
gacggatcat	tactttccat	ctcgtctttt	gggttgatc	ttcttccgat	ccgattccgat	180
ggcgggtggc	ggacagttct	tggacaaata	ttcaacgact	tccatcccga	agttttcttc	240
caattattgc	cggctacaag	ggcgttgcg	tactgatgg	cataggttac	ctgtgcattt	300
tgctcgtaag	ggtaagcgaa	acagggcgca	atccatgctt	gaggtgctcc	gttcgtcttg	360
caaactctga	tgctcgtttc	cctgatcttc	atatcattca	ggtacgcagc	tcggaaatac	420
agcccttcat	atatttccag	tctaaatatt	cttactgcgg	tctcctttca	tctaagttaa	480
cgataaggat	tgctgttag	gactctataa	gttcggcaat	cttccaaaat	gagactgttc	540
atgggagttt	gattgagctc	ttttgctgca	gagctgattc	ttagtgtctc	gggaaaggtc	600

aaacctccgg	tatatgggca	ccgagcaa	at	agaaattccc	caggtttcca	ttagagaagt	660
actcctttcc	tcgtcaaata	ggcgagaata	agaaacgatt	gtcagccggt	tcttgctccc		720
tgcatgatgc	aggaccgatt	gtcggctgtt	tcttgctccc	tgcatgatgc	aggacgcgat		780
tgctcgctgtt	tcttgctccc	tgcatgatgc	aggacgcgat	tgctcgctgt	ttctgct		837

(2) INFORMATION FOR SEQ ID NO:703

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 903 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...903

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:703

cttcgatgat	gcttggagtc	ctctcagatc	actgcgtaga	tggtagcgtc	tctttgcac	60
cctgctgcgg	gctatcaata	tcgaacctat	cctcgttcga	tgcccggcca	tatgttcgtc	120
ggttattaca	cggatatata	caaaaaaaaa	aaacattcct	ggagacaacg	atgatcggtg	180
atgtcgattt	ggacgatttt	tccctgatga	gcagttggat	tcgacgatga	taggcaaata	240
ccaaatcaga	tgtccaagct	gactttcgag	aagtcgaaag	aatatgccaa	caagaatata	300
aggaaaacga	agctgacatt	cactccggca	agtcgggcta	tatttcttgg	aaatatccaa	360
agacgtgcga	aggcgaatcc	aatccatcgg	cagtagcatc	gcttttgccg	catcgtcctt	420
ttgaaataag	aatacgccgg	atgctatgtg	gcttacggct	atgcaggctc	tcagtaacac	480
tttctgacat	aaaaagtgtg	ccgaaaacgc	tgctgaagcg	attttcgaca	cacctcatc	540
cttatgctta	tatgaaaagc	cgcactgcgg	atagcgtaaa	ctccgaaaac	aagatttgag	600
gattccacca	cctttgtaat	ccgctgtgca	aagcaaccga	aagggtgcggc	ccgccatcag	660
cgatgaaatt	gtcctcggaa	tagttgtatg	atgagtttcc	ccgatctaac	agtgcggctt	720
attcctcgtc	ttctcgat	gcaaagttag	caacattggt	tagatttgca	attcctttgtt	780
tcatgatatt	gggtatggtt	acactttcgg	atcctaatac	gcgttctcga	cgttcaaacg	840
tattacgata	gttcggttgc	ttaggtaata	tgctttgacg	atggggaagt	tttctccggt	900
ttg						903

(2) INFORMATION FOR SEQ ID NO:704

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2740 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2740

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:704

cgaaaaggta	gagataaaga	ggccgtgagc	ttccttgggt	aagacttatt	ttcagcacac	60
ccaaagcgg	agtttctgag	aaaagtaccg	gagtatctaa	gaggggtttt	tgctcgattg	120
ggggaggaga	tgtttgccctg	tttggcatct	cttccccctt	tccacaatgc	acttatgccg	180
gacagatact	tcggttattc	aatttaggca	tttcaactac	accatccctt	aggaatgggc	240
gagcgctgaa	gggtaagaaa	tggtatgaga	gatgctgcct	actcgaagcg	gcgcctatat	300
ctgcctcttc	gatgatactg	acgatgagct	tgccgtccgg	cgtaggtgg	agtcgttcga	360
agcaaaagct	cgcccaagag	atcgctggcc	tctctgctgt	cggtgtcttg	ccacaaggga	420
tggtctgata	ctcggctatt	tggtggcaat	cagttcgagc	atttgttcat	gcgatgatct	480
gccatcttcg	gtgtagtatg	gatgacatcc	cgcacgacat	ctgccgcaca	gtctatgatt	540
gtacagggtgc	tgccagcagc	gaataggaag	agacaccgag	gggcgcacaat	cgaacccgac	600
agattggagt	tcgtccacag	ctgccttcac	ggcagaacat	ccgacggatt	gaattcgagg	660
agttcgggga	agagaagttg	ttgctgtcga	tatgacgtct	tgattcgctc	gccatgaaac	720
gatcgtaaa	aataccttgt	gtgcgcggtg	gaaatcgacc	aaagccaaac	ccctactcag	780
agtatcacca	gataacggcc	gcgatggaca	tagcagagca	tatcggtgga	ggggtcgcag	840
atacggcaga	gggagtaaaa	tcggtcgagg	cgaacagctc	ttcgagcgga	tcggtgggtc	900
tgccatcttc	tcggcatctc	gcttggcttc	gactgcttga	agagttcggt	ccagcccata	960
tccggcgatt	gacgccgcga	ctgcggatag	gctccgtcag	tccggtttct	ttgaagggat	1020
tatacgatga	tccagatcta	cgggcggacg	aactacgttt	ttccccgggc	cttgatagca	1080
gggatgtcga	tcagttcttt	gcggtcgaag	tcaatggccg	gtactgcttg	ctggagctga	1140
gtgcttcacg	aatgaccaca	ccgatgagtt	tgaaaaagcc	tgttcgtcgg	agaacttgat	1200
ttcagttttg	gtcgggtgga	tattgcatcg	atctgggagg	gttcaagatc	gaaatacagg	1260
aagtaattgg	gcatgttccc	tgaggaatga	tcgcctcata	ggcagccatc	acggctttgt	1320
ggagtaagga	tgacgcatga	agcgtccgtt	cacgaagaag	tattgcaggg	cactcgtttg	1380
cgagcaccat	cggggcgccc	tacgaagccg	gatataattg	tatggggctt	ttcatcccga	1440
tggttatcag	atctttcttc	attctcttcc	gaatacatcg	aggattcttt	tcttcagagg	1500
agaaggaggc	agatccctgc	cagctcaccc	gaatggtaga	tagaaaaagc	gacttgcgga	1560
ttgaccaagc	cacccgttcg	tattcgggtc	ggatgtgccg	aaattccgtt	tcattcgttt	1620
gaggaatttt	cgacgtgccg	gtacattgta	gaagaggttc	ttcacaaaag	aatacagccc	1680
agtggagagg	tgacagtagc	cacttcgcct	acttcgagcc	attgatggta	aggcgcgtac	1740
ccaattcatc	ttcagccctt	cgggtaggag	ttccacttgt	gcaacggctg	caatcgaagc	1800
cagggttcca	cctgaaaacc	catcgtccga	aggctgaaca	gatcctgaaa	agaagctatc	1860
ttgaagtggc	atgtcgctcg	aaagccattc	gggcacgcct	ttggctcatg	ccttgccgtt	1920
gtctgtgacg	cgtatcaatt	cgcgaccggc	ctccctgaca	ccagcctgat	aatggaagcg	1980
ccggcatcca	atgcgttttc	caatagctct	tgacgaccga	ggccggacgt	tggtattact	2040
caccggcagc	aatttgatgg	cgatactgtc	cggcaggagg	cgtatgacgt	cgctcataag	2100
atgacctaaa	aaccaaccac	gatagcaaac	aaacggctat	gagcaaagcc	aacgtaggag	2160
tgttcgtccc	gagcagagtg	attgtgtctc	gccttgacgc	tgtcgtcctt	cagatgctgg	2220
gtaccttcca	caaatgttcc	gcgtatacga	gggcatagcc	ggagtagtcg	tgtgatgaag	2280
actgtccgtc	cagctctgct	tgccctcctg	tgtacttctg	cgtctaatac	gttcgatacg	2340
tttctccaac	tctcgcgtcg	ctgatcgtaa	tagataggtt	tgtgggtcaa	agaccggggc	2400
tacgtgtttt	atagaatgat	cctaatacca	tagtttttct	ctattaaaga	gaatggagtg	2460
aagaaaagat	cgaagaagcc	ttcctctttg	gtgtccgtat	aggtcgggca	atataaggag	2520
agagccggtc	tgtaggatcg	gtagcctctt	gccggctgca	ggtgtcggag	gaatggagtc	2580
ggtctgtagg	gcagcgatgt	caatgagtct	tttctctcct	cttcggccag	agcccgtgta	2640
tgcacgaggg	ctgccaaaag	accgctnaag	cgtcgcaaat	cggacagcga	tccgagcacc	2700
tgcaaaagac	gaatcccggc	tggcctgcgg	aaaagatcct			2740

(2) INFORMATION FOR SEQ ID NO:705

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2965 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature
(B) LOCATION 1...2965

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:705

tccaggacgg	atacgccgca	tagctcccaa	ccatgcctct	gtgctgatcc	ggccgaagag	60
cggtagcggg	aaagagttga	tagccgaagc	tctgcacctg	ggagcaaacg	agcctcagcc	120
ccattcgtca	aggtcaattt	gggtgggttc	ccgaaagt	gttcgaaagt	gagctgttcg	180
gacataagaa	aggagcttta	ccaatgcttt	ttccgacagg	aaaggacggt	tcgagctggc	240
tgatgcgga	cgatctttct	ggacgaaata	ggcgaactac	cggtcggcaa	ccaataaaac	300
tgctgcgagt	gctacaggaa	cagacattcg	agccgttggg	cgaagcgctc	cccaccgagt	360
ggacatccgt	gtgtatcgg	ctacgaatgc	ttcttgagc	gaatggtagc	cgaaggacgt	420
ttcagagagg	acctctacta	tgaatcaacc	tgatacatct	gcatctgcct	ccgtgctgtg	480
agcgtcagga	gatatacagc	tgctggtgga	agccttcagt	gaagcctttg	cccaatcgac	540
ggattgcccc	atgccgtttg	gagtgcggaa	gctatgcgac	gtatctgtcc	atgcccttac	600
cgggcaatgt	acgcgaactg	aaaaacgtag	tggagcgacg	ctattgctct	cgggatcgag	660
agaaatcagt	gcccgggatg	tggtgcttc	ggttcgcagg	tgacggcagc	agaccactcc	720
gacgaacggg	ctttgccgac	atggaggaa	ctgctatccg	agagacgctg	actaaatata	780
acggaacggt	agtcgtgctg	cacgagcctt	gggattgagc	cgggcagctc	tttcggcgga	840
atggagaaat	acggactgtg	atagtgtgta	aaaacagaat	cgcacgatga	aacgattggg	900
cagaatatcc	ctacgcgttt	tgctcctggc	agagtattgc	tctctctatt	gcttatggcg	960
atgactctcc	tatatcctcc	gtagagaaag	gcgggctctt	cttcattgctg	gctatagagg	1020
ttgctctccc	ttctttctcg	gtttcctata	taataaggta	gtattgccga	tacgagccta	1080
ggcgatggaa	tgatattgct	ccgttcacag	gactatgcc	ctaccctgct	cctgtcggtc	1140
agccggatgc	agaccgggtg	gtcgaacttt	ataatggctg	atgcacagcc	ttaagaagga	1200
gagactgaga	ctggaggaaa	gggacatttc	ctttcgctcg	tgatggatgt	ttcgcccggt	1260
ggcttcgtcg	ttttgatttc	gacatgcggg	ttgtatcggt	caatcctgcc	gcacgcaggc	1320
tgtggactta	cccgatgatt	atatcccgat	cgaagaccg	ttggaagaag	tagcgcgaag	1380
atccctttcg	gtccggacga	gctgggagaa	ggggaatccc	gacatggcga	ttgcctacgg	1440
ccgaggtgag	gaggattacg	cggatgagat	cttcgatcgt	tcgttcagcc	gtctcttttt	1500
cagtatcgaa	accctgacca	ggagtgtcat	tcggcggaga	aagaagccta	tgaaaaactg	1560
atcaggctat	agcccatgag	gtcaataaca	gtaccgccgg	tataatcggt	gtgctaattg	1620
cgtgggggat	gctttcgacg	acactcctca	tactcccgaa	ggggaatgtc	cgaagccatc	1680
gctctctgcc	gcgaccgggtg	tatggccatt	gaagtgcctt	atcacacgat	ttgccgaagt	1740
ggtcaagcta	cctgatccta	cccttcttcc	gtagacttgg	taccgctatg	cgagcgatgc	1800
atactgctga	tgcgccctttg	gctgtcgaaa	cgggtgtgaa	aatgaagatg	tgcaagagc	1860
aaattcgtgc	ttagtccgct	gcgatgcaga	gcaaatagag	cagggtgggtg	taatctgctg	1920
cgcaacgcta	tagagagcct	tgacacagaa	aatgatctgg	tgctcgggca	acaaagacgg	1980
ttctgctctg	tttgatcggt	cacaatctgt	cgtagaggat	aatggacagc	ctatcagcga	2040
tgacgttgcc	accgctcttt	tacaccattc	ttcagcacca	agccgaatgg	tcaggggata	2100
ggcttgccgt	tattcgcgaa	gtactgactc	gccacggctg	gtccttctcc	ctgaccccga	2160
tgccgacggc	cgcactcgct	tccgtatggc	gtggccttga	tgcgattacc	tcttttagttc	2220
gctgattacc	ctttccaata	gggtacaa	ttgtaggatg	gaatgttttt	gtcaccttag	2280
cacgtccggt	ttctcgattt	cttttttttt	caggaaacgat	tcggacaagt	attcattatg	2340
tgatttttag	gttggaacaa	cagaaaagac	cttttacgac	gcgtttcgat	cattataact	2400
aaacgtcctc	aacctggagc	gtagcctggc	tttctatgac	cgcgctttcg	ctttcgcgaa	2460
gtgaagcgca	aggaagcggc	cgatggctcg	tttctcctct	ttatctgggc	gatgtgtacg	2520
ggcattttct	tttgagctg	acttggttag	agatcggaag	gaaccttaca	acttgggaga	2580
gaatgaggtt	cacctcttgt	cgggactacg	ggcgactatg	atgccgtacg	cgaatatcac	2640
cgtgcctggg	ctgtatctgc	tatgagaatg	agcagatggg	gctctacttc	gtgaagatcc	2700
ggacggctat	tggatcgagg	tgctgccgga	gaatcgggat	tgatgttcgg	tactgtcgga	2760
tctctcgatg	ccgtgcgttc	cgaactgctt	tgagtgcggt	ttcttgaaga	ttagatgatt	2820
tcattatgct	ttctgccaat	caataaaatt	cttgcgaagc	ctgcgcgaac	gaaaaatctg	2880
tttgcgagag	cagctttcgc	agtgggaagg	cctaagctcg	tcggcgagat	gctgcctttc	2940
atcgctgtcg	tatgcttgtc	ggcac				2965

(2) INFORMATION FOR SEQ ID NO:706

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1820 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...1820

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:706

acgtggtagg	tacggggacg	atagaagaga	tcgctttgcg	tatcgctcca	ttgtggacaa	60
gttccgcaaa	gtctctaact	aaatccatcg	tatggcagag	agtccaattt	cgtcgattac	120
gtcaagatat	actgccgttc	gggcaaggag	ggagaggctc	tacgcacttc	cgcagggaga	180
agtatatccc	caaaggggcc	cggacggagg	cgacggaggc	cgtggcggac	atgtctttct	240
ccgtgcaatc	ggaattattg	gacactgctg	catctgcgct	atgaccgtca	tatctggcta	300
cgaacggaca	gagcggcgga	gccaagcgaa	gtaccggagc	gaaggagagg	atcgtatcat	360
agaagtcccc	tgcgggacgg	ctgtttacga	tgcgatacgg	gtgagtttat	cacagacatt	420
accgagcacg	gacagcaggt	gtgctgctcc	agggaggccg	aggcggacac	ggcaatacgt	480
tcttcaagac	gctaccaatc	aggccccccg	atatgctcag	cccggcgagc	cggcacaggg	540
cgtatggtga	tcatgcagct	caagatgctg	gccgatgtcg	gtctggtcga	tttcccaatg	600
ccggcaaadc	gacactgcta	tcagtgtctc	ctgctgcaag	ccgaagatcg	ccaactatcc	660
gttcaactacg	ctggaacctc	atctcgtatc	gtagcctatc	gagacaagcg	atcctttgta	720
atggcggaca	tcccggcatc	atcgaagggg	cttcatcggy	gaaaggactg	ggactgcggt	780
tcctcggcac	atcgaaagga	acgctttgct	cctcttcatg	attccggccg	ataggacaac	840
attgccaaag	aatacgagat	actcagtcgg	gagctggtgg	caacaacgaa	gagttggcac	900
aaaagcgcaa	agtgtctggc	ataaccaagt	ggacctcatc	gacgaagagc	tgtgcgagat	960
gcttcggggag	gagctgccga	aggcttgccc	gtagttttca	tttctgccgt	ggcacaacag	1020
ggactggaaa	gctaaaggat	acttgtggaa	agaactcagc	aaggagaccc	ttcacgagcg	1080
gacagcatag	tacgccaagc	tcttgatttg	accagtctta	catgggagag	gaggacgatt	1140
tggtccggca	tcgatagaag	acgacgagga	tgaagaggtc	tcgacgacat	tgattttgat	1200
ttggagatcg	aatacgatac	gaagggacga	tgcaccggga	tcagctttga	cgtacctatt	1260
ctgcatcatt	gtccgctttt	cgcgtaggag	tggtacggcc	aaagttagcag	caggccggtc	1320
gcctccactc	ttatagatga	gatgaacgga	gaggcttgat	cggctgatac	agcttgcgac	1380
ctcccggcca	tcaaagaaat	ccctgccata	gcagccacac	gagctgctac	aaacgtaccg	1440
gcaaggatcc	taaccgctac	aggccgtctg	cgagcagttg	tcccagcgtg	tagtacgcgg	1500
attggggctt	tattatatca	tgccttggtg	gacataggca	acctttttatc	tcttcgtaca	1560
gggtactcat	cgggggtattc	gaccgtgata	aggtaggctc	cgacattgta	ttcggcgggg	1620
atatgcagac	gaaccttttg	tcggaatcgg	acgtggcgaa	ttgaattcga	aggcctgcct	1680
gtctatcgcg	acgagaacgg	tgccttcgcc	actccaccag	cgaccacgaa	cgaacgagcg	1740
tggacgacat	cacgaagaat	acgccatatt	catcaatgat	ttcgggtgtgg	atcggactca	1800
ttcggactgt	ctcaagaagc					1820

(2) INFORMATION FOR SEQ ID NO:707

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 596 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...596

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:707

aggatcccca	gcctcaagcc	caagaaagga	cgcttcctga	gcaaagaaaag	cgagccgaag	60
agtgggagag	cggtaaggag	cggttccgag	accttgagct	tggtcgcaca	gtgctgctcg	120
tcggatagag	gatgcttttg	tcggaatgag	tatgcaagtt	gggaaaataa	gaagaaaatc	180
gagcagctgt	tgcaggctctc	tccctttggg	aaacctttga	gagcaagctg	aaagtcaagg	240
cagacagata	aatatgtgcca	aactgaaaaa	ggaaatnctc	gaagccaaag	aacaccctat	300
cacgacttca	agtcgtggca	gaagtccgag	cgcgaaactgc	gcctgtcaag	aatcaggata	360
ttatcacttg	gatgatgtgc	agggatctca	tgaagagaac	aagggtggag	gattggatac	420
cgggtactctc	tacctgaaag	aattcggacc	gacgtccaag	agcaggggag	cctcaatgtg	480
ctgaaccacg	gaaagccgat	gcgctttgcc	cgtggctcgtg	tacagaagcc	gacaggccga	540
ggccatgtac	acaaggagga	ggcttcctct	ggcgacggtc	tatatcgaga	aaggga	596

(2) INFORMATION FOR SEQ ID NO:708

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 712 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...712
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:708

gccgttctac	ggcaaggaag	cgtaagtatg	tcaccagccg	gcatattcag	accgtctgat	60
gcgagaactg	gacaagaatc	tggctctttc	gtgtggagcc	accgataacg	ccgacagctg	120
gctcgtattc	gggcgtggcg	tactgcactt	tccgttctta	tcgagaccat	gcgccgcgag	180
gggtacgaac	ttcaaggggg	cagccccaag	tgatcatcaa	agagatagac	ggcgagcggt	240
gcgaacgata	gagcttcttt	cgatcaatct	gccggaagag	tcctccagtc	gtatatagac	300
atagtgaccc	gtcgcaaggg	agagatgggtg	atgatggaaa	acagaacgac	cgggtgttta	360
tggagttcca	tatcccttca	cgagggatca	tcgactcaac	aatgccgtac	tgacagcatc	420
ggcaggagag	gccgtaatcg	ccaccgcttc	ttggaattcc	aaccgtggaa	aggggagata	480
gagcggcgca	caacgggtcg	atcattgcgc	tcgaaagcgg	aacggcctat	gcctatgcct	540
gaataatctc	caaaagccgt	ggacgcttct	tcattcttta	cgcaggagag	gtctatgccg	600
gtcaggctcg	aaggcgagca	cacgaaagga	agggcgactt	ctgcgttcaa	cgtctgcaag	660
agcaaaaaagc	ttaccaatat	gcgtgcttcg	gtagccgatg	ataagtgtca	ct	712

(2) INFORMATION FOR SEQ ID NO:709

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 622 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature

(B) LOCATION 1...622

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:709

cggagcatcg	tgggttagtcg	tgttggtggc	gtatgccagg	gcagggtgggc	tgtagtactt	60
ccggccaaca	ttcccatcag	cgtaagataa	ttgatcttta	tcctttgcaa	gcgataaatc	120
cgatgataag	gagaggcagg	agggtgatat	aaaaccgtat	ccgatccatg	taaaaccacc	180
tttgtttact	atcgtagcag	gaacccctct	ccggcccca	atcctacgca	agccaagaat	240
atgggtatgcc	gattttctctc	aacatcaa	at	tggcactggg	agtcgtataa	300
ataccgataa	ccgaaccgac	tcaatagaat	agccaccacc	aatggccacc	agcaagtccc	360
agcttgacgg	gctgaggaat	accgggcaaa	acatcggaag	cgaacccaaa	aggataccga	420
gaccgatgcc	gatgaatatg	gcattaggtt	cggttcggtt	agtcgtttga	caagaattac	480
cgatcagttc	tccactttgg	gcattactaa	ctcactgccc	actacagtca	gacgatcgcc	540
acctgtagcg	gaaggaagcc	aatgctacca	tctcaacttc	ggcacggtca	cacgtgtcac	600
attcatgcca	tgcattttgc	gt				622

(2) INFORMATION FOR SEQ ID NO:710

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 542 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...542

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:710

ggaaaattct	tccgattctc	gaccctgaaa	atagattttt	tggaaagctt	tgaataatat	60
gtctcaacct	atcaatgact	tataaagggt	cggttgggat	acccttagtt	agaaggggtg	120
agacaaactc	catttttgag	ccaaatcgat	acaaatggtg	ggaataccct	tagttagaag	180
ggtggagaca	actacacatc	ttagtaatt	tctttagtaa	tgttggaat	acccttagtt	240
agaaggtgga	gacaacggtg	tcccaagcct	gaacggtagc	gttgctggtg	ggaaaccctt	300
agttagaagg	gtggagacaa	caaacgcac	gttataagtt	ttttgattgc	gttggaata	360
cccttagtta	gaagggtgga	gacaacggtg	tccaagcctg	aacggtagcg	ttgtcgttgg	420
gaataccctt	agttagaagg	gggagacaac	aaacgcac	gttataagttg	ctgtgattgc	480
gttggaata	ccttagttag	aagggtggag	acaacacctt	tgcttgaca	tcctcaggac	540
ag						542

(2) INFORMATION FOR SEQ ID NO:711

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 565 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...565

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:711

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cgctcttcta taaaatgcgt gatgtccatt cttttcagat tctgtttcttc ccgatacggg      60
acaaacgctc cacctcgcg tccagacgat gaccgatcgc tccagcagga tatgcgtatc      120
ggacatattg cgcggatgct gtccgacgag gtaatttcgt cgaagatgcc atccacattg      180
gtcagattga aattgcgcaa atggacaagc acttggcacg ccagttgctg cggcgatatca      240
tcggaggacg aaagtcagac cgctctttcc ggtagtgtg tagcgcaagt gtccatgtag      300
cactctccgg catacggat ctgagaggca gcaaattcgg catgcccagc tcttctcgag      360
aataagcctg aaaatccttg tgtaccgagt cgatatctcc gagatggcat ttgccccaaag      420
tgctctttct ctgaagaggt atcttctccg ggacggctgt tgagcttcac cacagcgagc      480
ccggcacctt ctgacctcga ttgtgtgtgt tctccatcag gaggtatagc ttgntcangc      540
atacatccat gtgccatact tatcg                                           565

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(2) INFORMATION FOR SEQ ID NO:712

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 872 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...872

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:712

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ggatctttca accccatctg tatagtcgta cggcagactt ttatcaggat ttgccagaag      60
cctttccatg ttggatgagg tggttttatt ggacattttc cggcacgaga actccctttg      120
ccagggtgtg ccagtcgtct gatattgatt tgatcgagaa tcccaataaa acgctggtga      180
gcaaaaaacga tctgctgatt atttacacgg caacgagata cccgatgtcg tattgatact      240
cggagcggcg atatcgatcg gttagtgtatt cctgncaaac aatatctcca aacttatgct      300
aaagaaggtt ctttatatac tggggttctt tcttgtaact gccatcttgt tgcagccata      360
gttttctttt cggactattc cgatagcact cgtgctcagg tttggaagtt cgagtcgagg      420
gtaagacgaa acatgcattc agcaaaagac cgatgtggag cgagacttga agcgtctggg      480
tttcaccccc atggcaagct gctcgactct atcgatcttc acagaatgga aagaaacctc      540
gtgctaattc ccttttccgc ggagcggaat tgtatgcctc tccatccgcc aactgtatct      600
gacagtggaa caaaaagatc cgctctttat ggtagtagat ccgatacctc tttctatgtt      660
tctaccgaca ggagcgtgat cgttccaact tgcagtatgc tgcccccgta ctgatggcct      720
caggggatat atctcgtcct tagctaccgg ccctctcttc gacctcattg catttatcaa      780
gcgagatcca ttctggncaa actttttcgc tcaaggttat gtgcccggat aatgncagaa      840
catattaagt tccccgtctg ggcnaaactg ga                                           872

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(2) INFORMATION FOR SEQ ID NO:713

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 544 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...544

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:713

agatcatacc	ggatataaat	gccgttggat	gtggcctaaa	gttcgctatg	cttcggttta	60
catggtgaaa	attcttacct	gaaagtgccg	actaaagggg	tgtatatcaa	ggataccata	120
tcgtaggtgc	tgtattcggg	ataggaaccc	gctcaatgac	agacgttcgt	tcgtaaattgt	180
ctctcttgaa	tatgacgatt	gatcccgaag	gagggatga	tcaaagaaaa	tgctctgaaa	240
ttgacttcgg	cctcacgttc	aacgagtcac	ggtttaaaaa	gctgaaactg	aactacagaa	300
ggaaaaatgt	tgaacattaa	aagaataaag	aagaaaaatga	atgaagaaat	ttgtttgcaa	360
cggcagcact	gctttttacc	gcaagcacag	ccttgctcag	accggagtcc	aaacaaatac	420
cccattcggg	agtggagaag	aagcatccgt	tgccgtcaaa	acataagtct	ctttacctct	480
tatgcgaaaa	gggtaattac	aaggatgcct	atgatttttg	ggagaaagcc	tatgaggagg	540
cccc						544

(2) INFORMATION FOR SEQ ID NO:714

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1714 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1714

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:714

gccgtcagtg	atattgattt	ttccatccct	tcagggcaaa	cctatgcgcg	gtcggaaactt	60
ccggaggggg	taagaccact	atagcccagc	tcataacctgc	ttttgggacg	ctacccaagg	120
ccatatacgt	atcgggtggag	tggatgtagg	gatatggcaa	aagaagagct	gatggacagg	180
atctctttcg	tctttcgaat	accaaacttt	tcagaaccac	cattcgtgag	aatattacct	240
atggcgccg	gatgcacccg	aggatgcttt	ggctcgtgcc	atcgaccttt	ctcaagccgt	300
gaaattatag	agcgtttgcc	cgatggactg	caaacgaaga	tagagccgat	ggcacgtatc	360
tctccggagg	ggagcagcag	cgcatagctt	tgctcgtgcc	atactcaagg	atgctcctat	420
tgtggtgctc	gatgaagcca	cgcttttgct	gatcccgaaa	acgagaaatt	gatacagcag	480
gctttgcacg	actgacgaaa	ggaaagacgg	tgctgatgat	tgctcatcga	ctgacgagct	540
acagcatgtg	gatcgtatcc	ttgtgataga	gaagggacga	atcgagaca	gggtaccac	600
gaagaactcc	tgacacaagg	tggctctttac	aaatccagtg	ggaggaatac	cagcgatccg	660
tttcttgga	attatgaaag	aagaaaacac	acaattacct	ctaatacgaa	cgaacaaaac	720
ctatgatagc	atattccaac	accgattcgc	tctctctcgt	aaggggtgcg	aggatcttgc	780
caaagcattg	catggactac	ggttttgaat	gtcggattta	tgttgccctg	catttcactt	840
ttcttttcct	cgaagactat	ctgcaaggat	ccgccacaca	tgtatttggt	attatatagc	900
catgggagcg	gcttttatgg	cggtgctctt	cttatagctc	tcttccaata	cacaagcctg	960
tacaccaaga	tatacacaga	agtgccaac	gccgcacgcg	cttggtcgaa	aaactaccga	1020
aaactccatg	gctttcttcg	gagagaagaa	tctgtccgat	ctgacttcca	cgatgatgag	1080
gatagtacgg	tgatggagac	tgtcttctct	cacagtatac	cccagctttt	gcacgcttgg	1140

tcagtctctt	tttgatcggt	atagggctct	tctgcttaat	tggcagcttt	cgttggcact	1200
cttttgggtt	gtgcctgtag	cagcctagca	attgtctttt	ccaaaaagat	gttgaacaaa	1260
tcattccact	cgaataccat	gtcaaacgag	aggtcaccga	gcatatacag	gaaggaatcg	1320
aaggatacag	gagataaaat	catataatgg	cgaagaagaa	tttgccgagc	gctcgatgcc	1380
aaactccatg	cctatgagaa	gagccttatt	cgatgtgaac	tgttgtcggt	gccgtcctta	1440
atgcttcaca	tataatcctc	aaactgggac	tgctctgtga	atcataatgg	gagcttatct	1500
cttgtcagaa	ggaacaatta	tctattcact	tatttagtct	ttctgcttat	cggatcgagc	1560
atatataacc	cataagtga	gtattcagca	atttgctact	cttgtagtac	ctcgatgacg	1620
tatcgatcgg	gtgagagaga	tggatgctat	gccgatacag	gaaggtaaac	ggactattct	1680
gtccggaact	tcgatattat	attccaaaac	gtaa			1714

(2) INFORMATION FOR SEQ ID NO:715

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 512 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...512

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:715

atctcatcaa	tcaaaacata	gtatttcctg	cccatatctt	ttgtttgctc	atgatatagt	60
cgtataggag	attgggatta	cgatacttga	tatccgattt	ctatcaagag	ctacctccac	120
gaaatcttct	ttttgagctc	cttcctcatc	aatcgattct	taaagagagt	gaagagtagg	180
aatgactttc	ctgaactctt	aatcccgtaa	caatcttcac	cttaccattc	catcgctttg	240
cgaatactgt	gcaatgtatt	catttctgtc	tattatcata	aataaggctc	cttgatgatt	300
ctctgaaatt	ttagtcgtgt	attacaactg	ttttgtcagt	gcaagatatt	tttttgcttc	360
gaactaacia	aaaaaataga	ggaacaaatc	tatacgatgc	ttttgatgta	gccgaggatt	420
ttgcgaatac	atttcaaaac	actttgaggt	ggggaagaaa	cggaaaatta	ccgtctttca	480
aatcgggaa	cggcggttatt	ttccggtaga	ag			512

(2) INFORMATION FOR SEQ ID NO:716

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 585 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...585

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:716

ctgaagaatt	gtaccatgtc	tgccacnttt	ccgttggatg	ttcgctcgga	acaaaagcca	60
gattcacttt	cttcttcggc	ccgctcaa	acaatatgta	cgcgcttacg	acaaagggat	120
gaaagccgag	gacaacctcg	atctcgacac	ttgggtctact	tggttgccag	tatcttccga	180
tggatcaatc	ggtatagatc	attccggcct	ccacattcct	gcagcagtat	tttagcaact	240
gggggtgatc	attcttttgc	tcacgctggg	gatcaaactc	ctcatctctc	ctctgcttac	300
aaggggtatc	tctcctctgc	caaaatgcga	ttgctacggc	cgcggtacaa	gagatcaatg	360
ccaagtaccc	gggcanggat	caggaatcca	tgtgaagcgg	cagtctgcta	ccatgaatct	420
ctatcgtgcg	gccggtgcag	gccgatgagt	gggtgcttgc	ctatgctctt	ngcagttccc	480
tttctcdata	ccatgtacat	gtatttcctc	acgactatcg	acattcgtag	cagagtttct	540
ctgggcggaa	gacctctcct	ctatgatgct	ggtttcagct	ggacg		585

(2) INFORMATION FOR SEQ ID NO:717

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 453 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...453

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:717

gtgaagagcc	gagcgaagaa	gatgaagcag	ttcagactga	agaaaatctt	tatgccaaag	60
tgctaaaatg	attttataag	agagagagga	tattcatctg	gcagtacttt	tgactaatg	120
gggaattacc	aacagatgta	attgcatttg	tggtgacaaa	aaaagaaaac	gacatgagga	180
agttattttt	aatagctgct	tagaaatggt	tatgttcggc	tgtctcctat	tctcaaaagt	240
aactcaacga	taataatatg	agtttgggac	aaatacacga	actgcaagtg	catatttttc	300
gcaaattcca	aaggatttgc	tggaaaatat	ggataaaatg	ggctggacaa	ttcgtaata	360
ctcaatgaat	atgaggggag	atattttaat	ttattttcaa	tatagaccct	caggttttta	420
atcttgtcgg	gaaaaaagtc	gcttttgggg	aag			453

(2) INFORMATION FOR SEQ ID NO:718

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 699 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...699

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:718

taaaatgatg	atgacagact	gtttttcgcc	ggctgcagtg	gctccaaagc	ttaccgtcac	60
tcactttctg	tggaatgatg	actttctcaat	cggtttcaat	tcgatggggg	taggttggat	120
ctaccctcta	ttcgaaggg	acacacactt	cttgtcgaag	taaaacatct	tgccctcagt	180
tggatctacc	ctctatcgaa	gggtacacac	aaccatagac	gtaaggcata	cccgtttcga	240
tctgtggatc	taccctctat	tcgaagggtg	cacacaacat	aagactatat	cttaataacc	300
aaattctgtt	ggatctaccc	tctattcgaa	gggtacacac	aaccaaggg	cgggttcttg	360
accttacctc	cagttggatc	taccctctat	tcaagggtac	acacaactat	aaaggtttgt	420
tcaaggaatg	tgctaccgtt	gatctaccct	ctattcgaag	ggtacacaca	acgatgcgga	480
caacgtccct	tactccgtct	tggttgatct	accctctatt	cgaagggtac	acacaacagc	540
gattagctcg	tccgccgaca	cgtcttggtg	gatctaccct	ctattcgagg	gtacacacaa	600
catgattctt	gattggtggc	ttgggcgttg	gaaatgtcag	tagtgtgggg	attcttctct	660
gttggggcct	tttcgctaaa	tttcgcagcg	acgaggtgc			699

(2) INFORMATION FOR SEQ ID NO:719

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 964 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...964

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:719

cgtcgaggct	gtttcgggtg	agtatcggac	atgtcaagag	acgtatttga	ggttaggagt	60
atgtgcttga	gccggcggaag	gagcagtagc	ggcagcaagc	gaagatgacg	aaagcgagga	120
tattgggtcca	agcatatttc	agggaaatcc	atcaagggca	cttgtcacat	aagagagata	180
gtagtgccctc	aacggaatag	cgcgctggcg	gactgcatga	cagtcggcat	accgagagcg	240
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cataaagttg	cgaacagcgg	ctgcaccggc	taccagttcg	ctgatcatct	tggtgtccct	780
gaagggagcg	agccaccac	catataggca	tagttggtat	agaaggagag	cttggcttgc	840
ttctgtgcgt	aggcatcccg	tgtcattccc	tcgggtatat	agagtaaccg	tatatctcgc	900
ctcgtgact	gccagccgag	ccttacgcac	gtttcgaact	gttgaccatt	tggttgctt	960
ccat						964

(2) INFORMATION FOR SEQ ID NO:720

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 5870 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...5870

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:720

gtggaggatt	tgttgtctta	tataggaagt	atcagctatc	cgaacagcaa	gcgaagcatc	60
tggtcgggat	ggcgcagatg	ctttgctctg	attttgga	gtggtaccgg	acgaggtgtc	120
ggaactaacc	aaactgccc	gcgtaggcgt	aagacagcca	acgtgatagc	ctccgctcgtc	180
tacggcaaac	cggccaggcc	gtagatacgc	acgtattcag	agtatcagaa	aggataggcc	240
tgaccccggt	tcgaagtctc	cgttagagac	ggagcgagag	ctggttcgct	atatccggat	300
gtgctgatac	cgaagactca	tacttggtg	atcctgcatg	gacgtacgtt	tgtctggctc	360
gcaagcccaa	atgtgcagac	tgtggcatag	cacattctgc	cgctactact	cgaaagtttt	420
taagaagaac	agtacagccc	tccgaaaaaa	gggaatgat	aaggcctgtt	gtgcaaataa	480
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acatggcaga	tacgacttgt	atatccgatt	cggccaaatg	tttctcctg	ccatcggtgt	660
ttaccatgta	aaaccgatga	aaaacaattg	cggcattccc	tgcctcttgt	agctgcttct	720
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cagcaatctg	ggcgacatgt	cgagcctgct	gccatcaaga	aggagtggaa	ctgatctacn	5820
gcaagttcat	gactatctgc	agagcatggt	gtcaaaaaga	tagaaccgca		5870

(2) INFORMATION FOR SEQ ID NO:721

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 863 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...863

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:721

tggcgagccg atcncggnag agaataatcgg taagcgagtt gctgccgatt cgataccggc

```

cttcaccgca ggaatgcttc tgtactgaac acgctgggtg tgtactcaaa ggactgttcg      120
tcctcgtagg aataggtctt atccttgtgt cgttttcggt cttttcggcc ttatattaga      180
gctgttttga gacggtacgt ggcacatgct cctttgactt cggactggat ttctattcct      240
tcttgatgat actctgtgcc acgatctccg tatttattat agtagccgtc ccggtatggc      300
catcgttttc agacatcaag ggcaggggag aaacgggatt attctgcagg tctcaaattg      360
ctgggcttga ccatttggtc tgctgccgct gtctattggc cgtagtcttc atattgataa      420
cccgtgaact gggtttgaat tcttctcca tcgccattca gtatgatgtc agaaatgcct      480
aaaaaacatt aggttccttt taggacaatc catagtaaag gtttttgctt tttgttcaa      540
tcttcgtttt agaatcttgc cttttgaaaa agaataacat cagctattat agtatgagcg      600
ataattgtca tttgactgag aaatcatttc gaagtgtgtc ctcccgaagg attccgtcct      660
gactttattt ttccgaattt gtctccaaac tggatttggg tactcctttc tattgtcctt      720
ttcgccggat ggggttgggt aagtataaga gggccggcat ggctcccagc acctatttta      780
cgacgtaatg gcacgattcc ccgaaggcgt tcagagagca tgctccggtg ggtgaatcca      840
aactacaatg tatatgataa tta                                     863

```

(2) INFORMATION FOR SEQ ID NO:722

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 630 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...630

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:722

```

ttattcaaaa agttcctcat ttccggacag atgctgttct tgacttgcta atagtgttct      60
tctcactccc ttattgacag atcattcgcg tgatctccct cgaataggga ggtaaccaag      120
cagtactacg taccggagga aagacttggg gcgatgaact gaccgatctg ctttttagcc      180
ggccggatag tgggcacagc tactcgaccg gttgttccta ctcttgaaa aaattgccga      240
aagcagctct ttcagccagc cgattcggag tatgaccaat cggaggagac caatatatgg      300
agttggagca gatctatcac tatcgcaata tgctgaacag gctagaggac tggtcgaatc      360
ctatgccatg gatattgtcag ttcgttctgc agtcttctgt tgcaaggatt ggtatccgga      420
gtgagcatcc cattcgaggg aaacctctgg tcggcctgca aatcatggga atagatcaaa      480
cgcgatcttt gatttcaaac atctgatcat tctctctgtc aacgagggta aactcccatg      540
cgtgtctatg aaacgacaat gataccctac acattgcgca gaggggatga cttcgggtcaa      600
tgaggtaaac gaagccactc aatctatgat                                     630

```

(2) INFORMATION FOR SEQ ID NO:723

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 891 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...891

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:723

```

aatgaaaact gcagaagttc atcaggatca gacgatattt caattgctta tcatgagtgt      60
gtgattgtag ttattacgga agactgaaaa gaaaaagcct tcgacggcac cgaatcccga      120
atcgaaaggc ttatccccaa ttattgtgca tgtatcagtt gtcggtataa gtcatactgt      180
aaacgccgat acgcgcgtct tatttttttt tccgagctgt agtttgacgc cggacgggaa      240
catgaattat tcagctggga ggtgtacagc gaattggaag ctcccgaac ctgagcttca      300
caggcagcag tacgagaaca aggtccttgg tgatataagg ctccctcgg gagtcttctc      360
cgtattgttc ttgatatgct ccatcagcag gcactgatat tgctaaaccg atactcccgt      420
ttcttaaatgt tgtatatggt cataggaatg ccgtgcgagg ctgcatcagc tcggtctggt      480
cttgctcgaa aagtttctca ccgaatcctg cggcaagagc aacaagtagg agggcggacc      540
agcatcaagc cctcagatgg cttcgaagca ctgatattga actgtgctca ccgatttgcc      600
aagccaaaga ggaagacaga ttgctcgtga aagcatcgta aactgctctt tactgattgt      660
cagttgcgtc atcacccctg ccggaccttc acacaagtga gagaatcatt ctcttgcaac      720
aggtgggata tttggagttc ttgatatgat tgacctgata ggattcgctc gtgtttacga      780
atgttctgta gctgttggtg tggaatcggc cgtaaccttg tagctatnga agaggccatc      840
tgcgtattgt cacgctgagc acaactcccg taccgctcgt cgagtcacat a          891

```

(2) INFORMATION FOR SEQ ID NO:724

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 968 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...968

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:724

```

cgatccggca gccggatcgg tgctggccat agccgaagct ctgaccaatt cgtcttttgc      60
ccgcttcgta atggtatcga ggggtgtgagc ctgtcggcaa ctggatgtgg ccctgccgta      120
acgaaggcga agatgcccggt ctgtacctgc cgtggaagcc tggtcggact ttgccgtcga      180
tctgggcatc aacatcctac cggcaaggac tctctgtcca tgacacagaa atatgaggac      240
aaaaagtgtc gagtcccggt acggtgatta tcagtgcgcg agccgaagtg acagcattcg      300
tcgcatcgtc agccccgtcc tcagccatat agccgctacc gcttctacta tatcgatttc      360
agcttctgcc cgttctcatt gggaggatcg gctttgccca gagcttgggt actatcgggtg      420
atgaagtccc cactgtacgt gtccggaata cttccgcgat gcgttcaata ccgtacagga      480
actcattgac aggttctggt tctggccgga cagacatat ccgcaggcgg tctgattacg      540
ctcttctgga aatgtgcttt gccaatgtag taggcggtct ggaggaggat tggataacct      600
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aaggaccgca aagccgttga taagatctga ccgatgccgg catcggtttc ctcccgatag      720
ccaagccgac ccaaggcgac acctcttgat acataaagac ggagccgaat acctgttcgg      780
tatcaccaca tgcgcgacgt ttggtatgag tcgtcctacc tgctggactg cttcagagtg      840
gcaatacctt ggccggcaac cgcttcgaga actataagga acaccggtcg tatatcactt      900
cccaagcaat ttacgggtga tctgaagcga tggattggat cccgatcgaa agacggcatt      960
cggcattc

```

(2) INFORMATION FOR SEQ ID NO:725

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 725 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...725

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:725

```

ccattgtgta atctccccct tccatcacat gcttttgccc atccacgac gcaccttctg 60
atcgagattg cagtcaaggg tgtccctcat actaaagagg catcgaagaa aggtgctgtt 120
ctgaaaagca aacgagatct gaatccttat cctgtttttc aaacgatagt gaagcatcgc 180
cggcacgtgg catcaggccc cccacttata gtagattgta tagctgaggc attctccggg 240
cctgcgaaat cgttgagat ggggtgctga gcttgcaatg atatagaggg gatgttatga 300
tgtatagagt cgtgaggatg atgactatgc agttgaatgg attcgtttct tgcttatatt 360
ntgttttgc ttcatttctc cttttctttt ctccaatgat tcaaataatag gcaataagcg 420
gtagtagaaa ataaaaggag gagcctgtgc cagacctcct cctcaaaaac gaatagactc 480
tttagtagtt ttgggtgtaa atactcccaa agttattttt tattcgaatt atagatttcc 540
tgagtttttc gattagcttt tcaccacgaa gatctcgctc tataataggc cgtcaggacc 600
caacagtatg acttgcgaa taccttgnat gccatactat ccgtagccac attcttagca 660
tcgatatctg aggccatacc acgttgagct tctttgcttc agtgatcttc atttatccaa 720
actac

```

(2) INFORMATION FOR SEQ ID NO:726

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 821 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...821

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:726

```

cacgctatgg ccatagactc gcgagaagac tttgggtctga cggntccgca atgcaacgat 60
ccgtatgatc agcgtggcat agccgatcag cagcagcagg agcttaagaa accctgctct 120
tcgcccacgg tacagaagat aaagtcctat cctgctcggg cacatatctc agtttgggtc 180
gtgtcccttt caggaaccct tgcccataaa tccgcccagag ccgatagcta tcttggaactg 240
gtctaattgt atcctcctcc ccgcaaactg tctcttatcc ccaaggcaac cctgtacgca 300
tctgctggtg gggctgcatc actttgttga atacatagtc cacgaataga agtagccac 360
cgaacacaag gcgaaaacgg ctatcagcgc atcgacagta cataccgctt gatggccatt 420
gacaaaagccc atacgatcaa tctgccaaga gaccgtatgc cagcaggaca aaatccaccg 480
acacgaagta gacagcacta tggctacggc ataggtgaca gcagtaagcc ctgccgccag 540

```

acatagaagc	gtcctcgctc	cttggtatag	atccgcacga	ggaagaatct	atcacaaaag	600
ccatcgagac	cacagaccat	tcggcgccat	ccgtatgcc	caccacacat	cgccctgcaa	660
cttcagagcc	gtgacgaaaa	agaggaggca	cagaaggcaa	tgccgatgaa	tacgccggac	720
attccctcac	gataggggca	aggaaaaaag	ctatatagac	gagggcagac	cccgtttcgt	780
ctgacaggat	aagcagtacg	ggatgaggat	aatggcaaaa	g		821

(2) INFORMATION FOR SEQ ID NO:727

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1342 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1342

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:727

agttcagcac	cgatttcgctc	cagccggaca	ccgcttttga	aagcgtagct	gctggagtat	60
ctcacgagc	aacttcaaat	ccggacgttc	tatcttgaac	aggtagcacc	ggccatacga	120
gtgaccaacc	ggtcctccat	cccgttaggt	ctacaggagg	tttgtccgac	gtcaagacta	180
tctgtttgcc	aagcattaga	ggtgattgaa	cacttggaag	aaagctaatt	gcgttttctt	240
cttgcgatca	accattggat	gtcatcgatg	atcagtacat	ccacttgctg	gtagatgcga	300
tgaagtcatt	gatcgtcccc	atacgggctg	ccgtagttaa	ctgatctcga	acaaatgact	360
cgatacgtat	agtactttca	accgggggtg	cactctctga	cacgaaggcc	caaggcatgg	420
cacaagtgcg	tcttgccac	acggaagctc	catatataaa	gaatggattc	atcggcgat	480
tgcccgggct	gcggcgatgg	cttcagccac	tgagcgagct	acatagttgc	attcgctctg	540
tagaagttgc	ggaaattgag	cctgctattg	agctgcgtgt	cgaaatccgt	gcttcgctat	600
gggtggctgc	attgggcatg	tgctgtgtga	gcaaattaca	tcgaactgtt	cggctgcctg	660
tccaccgtcg	gcacaaccgg	ccaatgcacc	gtgccgggat	atttgggcga	actgttgtct	720
acaagggcat	tatacgtaat	gatgcgttgg	gacctataac	acgccccaac	accgtacgca	780
gctgtctacg	aaattgccct	ccaaaaactc	acagaagaac	tgactcggca	ctttaaggta	840
agcgtatcgc	cctcgataga	taccgggatg	ataggcaaga	acatgtacgg	tatgctcgct	900
catccacaat	atcctgaagg	atgcgaagac	agcgtcccat	atttcattta	cattggtcga	960
gtggtagttc	atctaaaaaa	tatcgttttg	agagcagtcg	ttcattgctc	ttttggggat	1020
agcaaaggtc	aaacaaaaga	gtaaaaaaac	aatcgacaaa	aagtgtagta	taattcagtg	1080
aatcgtatct	atattgtttt	cagatggtta	taaccttgag	atataaaagc	gaaggaaaca	1140
acgctattcc	actgcatttc	agacacttat	acgaaaccga	ccaaggcgcg	accgagttat	1200
caacacccaa	gacagagcct	cgatttagttg	tgtacaaaga	ggttgcgagg	aaggagagaa	1260
aaatttttca	acagatcttt	atttacaatg	aatcgaaata	aggaaaatct	ncggtgctcc	1320
ctaaatcagg	atgtatccaa	tc				1342

(2) INFORMATION FOR SEQ ID NO:728

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 852 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...852

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:728

atcttcaatc	cgagaaaagt	gggctcagtc	aatcctgaag	caatcttcag	ccatcacgat	60
agaccgtgta	ggtataagaa	cgaacagcct	gctccggcat	ctcctcagta	gcgactatct	120
cctgcagagc	ttctacctct	gcctctatgc	gtctgtctcc	tcaaaccggt	gcaacgaaag	180
tcaatgattc	caacactctt	cgttcggaat	aatctcttga	gctgctactt	ccaatggcat	240
aataacatgg	gtaaaaccag	ccaaagcagt	gagcagactc	ttttgaagta	gttcggtttca	300
tagttatctc	cttttttaat	tagtatctca	tcttggtgct	tctttcgctt	cttaaataag	360
gtgatacaca	aagataaaaa	tatatctcgc	cgcaagctat	tcttcaacct	aaaaagtttg	420
tatgacgcag	gaatcggaat	cttttctctt	gacaaaattg	aagtcaatca	ggagcaagga	480
ggttctcttt	aggtcaaaaag	actgatgcta	cttgctttta	taatgtttca	ttgcttccgc	540
atatattggc	gaatggcagc	tatccgattg	gcacgcctcg	gatgcgtatc	agaaactcta	600
cccgcccggt	accttgggca	gccatctttt	gccaaaagta	attgccgnat	tcgggttata	660
accggccatc	gccatgaaga	caagtctatt	ttgtcggcct	catactcctg	tttccgattg	720
tagggtagcc	gtaatagcac	ttgtgatcca	atgccatagg	cctgcccgat	gaccgtttgc	780
agtgtgctga	cttgggtggag	actgctgcgc	ccagtatatt	accacccatt	tgggtagata	840
ttcctgactg	at					852

(2) INFORMATION FOR SEQ ID NO:729

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 678 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...678

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:729

gcgttatctc	tatcatagtg	gatattcgga	gcattccgct	gccggcacct	tccttgcctac	60
cgtttgaccg	gacatccgaa	gttcagatcg	atcaagatcg	gaccggccga	ttcgcatagt	120
cgggcaagcc	tctaccatcg	aagccaaatc	ccgtccgtat	atctgtacag	ccatcggggcg	180
ttccgattca	tctatgccat	ttttcggaat	gtgccgggcta	cttgacgaat	cagggcatcg	240
gcactagaaa	ttcgggaataa	accagatcgg	caccgaactg	cttgacatg	atccgaaggc	300
tacatccgtc	acatccctcca	tcggagcgag	tagcaaaaggc	tctccccgag	gtctatggca	360
cctattttca	tgctccttgg	gctatggctt	gtcctgtcgc	agagccgctt	gaatatcggc	420
acatacgttt	tcctctccca	aagctctacg	atgcctgcag	tggcaagttc	ttcgtggacg	480
tccttgcgca	accggagagg	acgatgctga	ccccttcttt	ccggctcatt	ttgatcagggt	540
ttccagattg	tgcattccctg	tcgaatccat	aaacggcaca	tgccgcatct	gataatccga	600
acatcgggat	ggtcgcccaa	tgtgttcattg	atctcttgaa	tctgttcgcg	ataccaaaga	660
agaaaggccc	ttcgattt					678

(2) INFORMATION FOR SEQ ID NO:730

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 709 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...709

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:730

gcgccccaaat	gccaaagatc	ggaggggaaa	ctttcggcct	gaacgtaatg	gtgaagagga	60
cagggatcag	accgaaaaaa	atgaagactg	cgatttcgcc	aatccatgat	aggccaaagg	120
ataaggaccg	gcactatacg	acaaagccca	atggctacaa	cgactcccac	gaccagcaac	180
caccagttgc	taatggacaa	agcagaaaaa	cgctaaagcc	gagcagaaaa	agaaatgaga	240
aaagactgcg	agaacctgtc	gctccgacaa	ccaacctttg	gagatccac	gttcaagcct	300
acacgctgat	cggtatccgc	acccttctta	tagtcgaacc	aatgttggt	atattgctga	360
ccgtttgggc	agacaccgct	acgatcaaag	ccaagcggcc	tgtggccagc	gaaaattgcc	420
gtcagctata	gcataagcaa	tgctacaacg	acaggactga	cagatgccgg	cagggtatga	480
ggccgtagca	agcgagccaa	gctttgagac	gcgggggtga	tccgttattg	ctcatctgaa	540
aaagacttcc	cggtagcgga	cgcattattat	aggaagaagc	catcacggtc	catatgctcc	600
ggccgaacga	atagccagat	aatcgccgcg	tttgagtcgg	gcatgagcaa	ttcacgctcg	660
aatacatcgc	tggtatcgag	attgggcgac	aacatcgatt	tctctgcag		709

(2) INFORMATION FOR SEQ ID NO:731

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 530 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...530

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:731

ggcctcccga	ggcaagagcg	ccaatacggc	cgtgatgtcc	ttgtcattgc	catgccgaag	60
acgatacgca	gctgtcggta	agtctgtcgt	ctcagttgtc	ggtgatcaga	cggaatccgt	120
cttcgtttgtg	tccggtatcg	catacgaccg	tggtgtctcg	gccaactgct	gccaacggcc	180
aaacagccct	gacattccgt	aacgtgggca	aatccttcac	ggacgtgttc	cgaagaaaga	240
ttcagccgca	tcgtttggaa	aggacctcca	cggcacagag	aatcgtagcg	gcgtctcctc	300
ctgagccaag	ccggtcagtt	cgccacgaac	cgatccatag	tccgtgtttg	gtatgtatag	360
caaccgtttt	ctaatgtcga	ggaaatgatt	atcccgatcc	ttgagcaaag	acaatatccg	420
ttctttcctc	atcggttttg	tctgaaaggc	atggcgacac	cctcctcggc	tcggccgacc	480
acaacgggga	tccggacttg	atgatcccg	ccttttcgaa	gctatcttct		530

(2) INFORMATION FOR SEQ ID NO:732

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 712 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc feature
 (B) LOCATION 1...712
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:732

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ggcggcaggc atccccacgg ggcgcgcgct cggcaggacg atagtcccgc attcgacgag      60
cctacaccga ttccacttc ggagcaaata attccgaact ctccactccg cgaatcttgg      120
atttcttgat ggcaaactct tcttctcgtg atagagcgtg gtgcccaccg ttgccactac      180
caccttttgg cctgcaccac attgggcgca ccgcagacga ttgcaaagg cgcacccgcc      240
cccactctac cgtgggtgata tgcaaatgat ccgaattcgg gtgttcctca caagcagaac      300
atggccgatg accaaacctc gcaagcctcc ccgaatcggt tcgtctcttc tacaccgccg      360
gtctccagac cgatggaagt gagcgtgtcg gcattctctg cggagagagg gtgcagggca      420
ggtactccaa gagccatttg ttgagatatt catctttggt actccttagt tgtatatgtg      480
cttcagagac catgggtcag gtctcaaacg cgattattat atgtaagccc acaaatttac      540
gtttttctcg gggagtgttt gttttatggt cgtcttgccg tggtttgccc ctccgagtgc      600
tctgcttttc gttctcccaa agattctggc ttccctttcc ggtttggaac aaattcgggt      660
gtatttcngg cctgtaaaac gtgggttttg ggaaatatat tttgggtttg gc              712

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(2) INFORMATION FOR SEQ ID NO:733

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 527 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc feature
 (B) LOCATION 1...527
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:733

```

tgctttctcc tctgaaaaca cagttagagc aacaagtcaa ttggagttca ccgtcttcgg      60
ctcttatggc agtagcgagt tctttatcaa cgttttctcg gattcctcat attggcaggg      120
atcatccttg accgcatggg cgtgcgttca ctgccatttt atccggcagt ttgatgcttt      180
tgggtgccct tattaagtat atgccttgag tgaagtcttc aatggcgggc gcttcgggta      240
cgatagctca attccttttc tatgggtttc ccgccatctg ccaagctggc ctgttcgggt      300
ttgctatttt cggatgtggc tgtgaaatgg ccggcgtaac cgttcccggt ctatcgtgaa      360
gtggttccat ggcaaagagt tggctttggc cagggacttg agatggctat tgcccgtttg      420
ggagtcttcg ccgtgttctg gcttcaccta tcatttcaaa gcagttcgaa ggtacgcttc      480
agagcgttca gtaccggtta tttccggttac ggcactcctt tcatcgg              527

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(2) INFORMATION FOR SEQ ID NO:734

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 747 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...747

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:734

taatcacccg	agccacatcc	ggcatcgggtg	cagcttcggc	tcgccgcttg	catcgctcga	60
ttataacctt	atcatcacgg	gacgacgctc	cgaacggttg	aaaacattgc	cgatgaaatc	120
agagctgaat	accctgtcga	aatcctccgc	tctctttcga	tgcccgcaat	cgcgaagaag	180
tagaagccca	tttggaatt	tgctgatcc	ttggcaggcc	gtttccgtcc	tcgtgaataa	240
tgccgcttg	cagcgggact	cgaccccata	cagtccgggtg	acattgaaga	ctggaacgta	300
tgatagacac	caatatcaaa	ggactcctct	acgtaactcg	cacatcagcc	cgggtatgat	360
agcccgaagc	gccggccata	tcataaatat	cggctctattg	ccggcaagga	agtttactct	420
aacggcaatg	tctattgtgc	ccgaagcatg	ccgtagatgc	tctttcgaaa	gcgatgcgta	480
tagatatgct	ccttatggca	tcaaagtcac	acagatttgt	cccggagcag	tggagacggg	540
ttctcgctgg	tgcgcttcca	tgatgatcag	gccaaaggccg	atgccgtgac	aagggcttca	600
ctcctctctg	tgcaaacgac	atagcggagt	gtattgcgcc	gtactgaacc	tgcttgataa	660
tatctgtatc	aacgatatgg	tggtcagccg	aagcgcagcc	ggcagcggac	acttttcaaa	720
caagttgatc	acaaaaggcc	aaacgat				747

(2) INFORMATION FOR SEQ ID NO:735

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 670 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...670

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:735

atgatgcagg	acgcgattgt	cggctgtttc	ttgctccctg	catgatgcag	acgcgattgt	60
cggctgtttc	ttgctccctg	catgatgcag	gacgcgatgt	cggctgtttc	ttgctccctg	120
cacgatgcag	gacgcgattg	tcagctgttc	ttgctccctg	cacgatgcag	gacgcgattg	180
tcagctgatt	cttgctcctg	cacgatgcag	gacgcgattg	tcagttgatt	cttgcttcct	240
gcacgtgcag	gacgcgattg	tcggctgatt	cttgcttcct	gcacgatgca	ggaccgattg	300

tcagctgatt	ctgctcccat	caatgcgcta	actatcagct	attgcaacta	ttttatagga	360
cttttattga	agtcttttgc	cgagagctg	atcttaagt	tttttcagat	tacttgaggt	420
ttgcagagag	atcgcatgaa	gtctcctttc	ttcgtcaaat	caatgcttgt	gtctgtcttg	480
atcgatatga	gaggtgggaa	ggttattgtg	caacagtctc	aaaatgtgaa	gacgctcgga	540
tcggtcaaat	gtttcgacac	gattactgat	ttttgacctt	tctgagtaca	actttttccc	600
gtacacatca	gaaatgatgg	tgtacagatc	ggatgaaagc	cgtttgccga	ttgtggtagc	660
tttcagccgt						670

(2) INFORMATION FOR SEQ ID NO:736

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 830 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...830

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:736

gtggtcgatg	ataacaaaca	tgtactgacg	gctttgaaat	tgctcctgag	gggagtttctg	60
agaccgtgac	gctcctacct	tcccccaaga	cactgcttcc	acgatcgtag	aggtgcatcc	120
ggatgtactc	ctgctggata	tgaattttct	accggcatca	atacgggtaa	tgaaggatta	180
tattggctgg	atcaggccgt	agccgtttcc	ctgacctccc	tgtggtactc	tttaccgctt	240
atgcgacatt	cgtctggcag	tggaagcctt	gaagcgtgga	gcaagcgatt	tcgtgtcaag	300
ccgtggaaca	acaccgagct	gttggagtcg	cttcgcatgg	cgagaataag	gccgcaagca	360
ctcaagtgac	ggctacacct	aaagaaggcg	atcggtat	ctcagcaaaa	gcaaggccat	420
gtgtgaggtg	ttggagctgg	cggtcgtatc	ggcgatactg	cagcccatgt	cctcattacg	480
ggtgagaatg	taccggcaag	ggcgtttttag	ccgagtatat	ccatgcccg	tctcctcgtg	540
ccggcagccg	atgctgactg	tggatatggg	agctttgagc	gagacgcttt	cgagagcgaa	600
ctgttcggcc	atgtgaaagg	agcctttacc	gatgccaaag	cgatcgcgcc	ggcaagttcg	660
agacggcgtc	cggcggcacg	atcttctgga	cgagattggc	aatctgagcc	ttgccttgca	720
agccaagttg	ttggcgtact	acagcaaaaa	gtggtgaccc	gtgtgggcag	caatacaccg	780
atcctgtgga	tgttcgtgtc	atctctgcca	cgaatagcga	tttgcccttc		830

(2) INFORMATION FOR SEQ ID NO:737

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1934 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1934

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:737

gacaaggtag	aaggacagct	caaggggtatc	actgacgaga	tggagcgtcg	cgcaaagctc	60
aggaggtatg	ccaagaactg	gccaaaaaag	aaaatgcaac	gagaaccaac	tctgcatcgt	120
agagcctttc	tattccaaca	acgaatattc	ctcatcgtct	acgatgtatt	caaggacgtt	180
cgtatggtat	ttgctctccc	agctctgtag	gtaagttcgg	aggcgatacg	gacaactgga	240
tgtggcgcg	cacacggg	acttcagcgt	attccgcgtg	tatgccggtg	ccgaaaccgg	300
ccggccgaat	acagcaagga	caataaaccc	tataagcccc	tttcttcgct	gccgtatcca	360
tgcaaggcta	caaggctgac	gactatgcca	tgccatcgg	ttccccggg	gtacggatcg	420
ctacctcact	tcttgggggtg	tgaagatcgt	atcgaaaacg	agaacaatcc	tcgtatcgaa	480
gttcgcggta	caagcaaggc	atctggaagg	aagccatgag	cgcagatcag	gctacccggt	540
caaatatgcc	agcaagtatg	ctcagagtgc	taactatttg	aagaattcat	cggtatgaac	600
gcgggtctcg	ctcgtcttga	cgtgataggt	cgtaagctcg	cgaggaaaga	gcattcgcag	660
actggtatccg	taagagcg	aagagtctgt	ctatggcgat	gtattgtctt	ctctcgaaaa	720
ggcttataag	gaagggccaa	ggccaaccgt	gagatgactt	atttgagcga	gacgctcttc	780
ggtgtaccga	ggtggttcgt	tttgacagt	ttgccaacgc	attggctaca	aatctgatgc	840
tcatgccggt	atcctcaaat	cgcttgacga	caagtacaaa	gatacctccc	ctcgctcgac	900
cgtaagggtg	tgcccgcgat	gctcgatatt	gacgccggcg	tatccctgcc	gacaagctcc	960
ccgatatatt	caagaatgta	tcgacaagaa	attcaaaggc	gacacgaaga	agtatgcaga	1020
cttcgtattg	acaagagtgt	ggttccttat	agcgacaagt	tccatgccat	gctcaagtca	1080
tggacaagga	aaagtttgcc	aaggtatcgt	agaaagatcc	ggcagtaagc	tttccaagag	1140
cgtaatagct	gctgctcgcg	ctattcaggc	cgatgcatgg	ccaatgccta	tgccattgag	1200
aagggcaagc	gtcttttctt	tgccggttgc	gtgagatgta	ccccggacgt	gctctgccga	1260
gcgatgccaa	cttcccatgc	gtatgagcta	cggtccatc	aagggatatg	aaccgcagga	1320
cgggcctggt	acaactatca	tacgacaggc	aagggcgat	tggagaagca	ggttccttaa	1380
gagcgatgag	tttgccgtac	aggagaatat	cctcgacctc	tccgcaccaa	aaactatggt	1440
cgctatgccg	agaacggtca	gtcccatatc	ctttcctatc	gaacaacgac	atcacggggc	1500
gtaactccgg	tagccccgtt	tcgataagaa	cgcccgctctg	atcgggtctt	ctttcgatgg	1560
caactgggag	ctatgagtgg	tgacatcgag	ttcgaaaccc	atctgcagcg	cacaatcgcg	1620
tggacatccg	ctacgtttctc	ttcatgattg	acaaatgggg	tcagtgcccc	gtctcatcca	1680
agagctgaag	ttgatcta	ccattcgccc	tacaaaaaca	aaaatccttg	tgatcaatag	1740
agactgataa	gcctcctatc	gacaccaagg	atataaggga	cccacccggt	tcgatcacga	1800
actcggtggg	tgctctgttt	tatcatctcc	cgaaacggcc	atcgaaagcc	aacggtctat	1860
atcgaatcgt	tttcgtttctc	tatatattta	ttggaatcga	ttttataaac	taaaatgatt	1920
cataataagg	agcc					1934

(2) INFORMATION FOR SEQ ID NO:738

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3381 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...3381

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:738

cttatgggaa	tcctccgaa	tcatagttcc	cgaggagaaa	agaacattat	cattgccggg	60
gattaatacc	tgcgatttat	agcgagtctg	ccggcattca	atcttctctt	ttaggatctt	120
acatcacatg	tcacgttgca	gaaattttgc	atttgtgggt	tctaaaaacg	tggcgcgtaa	180
actttttcat	tttgcccgag	aagtaaaaaa	atctcgagcc	aaaacgaaaa	aaatcatg	240
ccacttattc	cataaaatcg	aaccgaaatc	aaagtgtttt	aggctcgtac	tccgagacag	300
tagttcacaa	gcatacagga	gaatagcatt	gatgtggaat	caagtatctc	aatattgaga	360
gcgttcgatc	ggtcaaaa	aacactctat	ctccaaaatt	caaattttaca	tcggtttatt	420

gctgctcctt	ttgcaaagt	gtttgacaaa	tcgtatgggtg	agcaaattgc	ttagatgaaa	480
aaaaggataa	aggattagtc	tgggtgcatt	tttttattta	gttttgtggc	tgcccgata	540
tagagcagtt	gtggaagttt	cgtgacttgt	gtctaaggcc	ggtagcgggt	tttgagactt	600
cccttggtt	agggtaaaac	cggagaagaa	aagaaaaaac	ataacagtaa	taattttaag	660
tttaacgcaa	aagaaaagtc	tatgaaagaa	tgacgctatt	cttcctttgc	ttgctgacga	720
gcattgggtg	ggctaggccc	agaatagaac	cgtgaagggt	acagttatct	cctccgagga	780
taatagcccc	tgatcgggcg	gaatgtcgtg	gttgtcggaa	acaccactat	cgggctgcaa	840
ccgacttggg	tggcaacttc	acgcttagcg	tgccctgcaa	tgcaaaatgt	tgagagtgtc	900
ctattccggt	atgactacca	aagaggctgc	ctcgctaatt	tgatgaagat	cgtactggat	960
ccggactcta	aggttctgga	caggtagttg	tattgggtta	cggtagcgga	cagaaactca	1020
gcactgtttc	ggttctgtgg	ccaaagtgtc	cagcgaaaag	ctcgcggaag	agcccgttcc	1080
aatatcatgg	atgccctcca	aggtcaggta	gccggtatgc	aggttatact	acatccgggtg	1140
accctactgc	cgtcgcttct	gtggagatcc	atggtaaggg	tcgttggggg	caagctctgc	1200
accattgtat	atcgtggatg	gtatgaaact	tctttggatg	ttgtggctac	gatgaattccg	1260
aattgattttg	aatcatgtcc	gttttgaaag	atgcttctgc	aacatctatt	tatggagctc	1320
gtgtgcaaac	ggagtcgttt	tcattcaaac	gaagaaaggt	aaaatgagcg	aggaggctcg	1380
attaccttta	atgccagtta	cgggatttct	caaactcctga	aactaagccc	cttgataata	1440
tgatgactgg	agatgaattg	ctggattttc	ggtgaaggca	ggtttttggg	ggaacaatca	1500
aaccgttcag	aagggttaaaa	tatgatcctt	gccggagctg	aagatttcta	tggcaattat	1560
gattctttta	agatgagtat	ggtaagacat	gtttcccagt	ggattttaat	catgatgaga	1620
ctggctcaag	gctttgttta	aaacagcacc	caccagtcaa	ggtgattttc	tttctccgga	1680
gggtctcagg	gaacttcata	ttatgcctct	ataggtaact	cgatcaggaa	ggtatggctc	1740
gtgaaccggc	aaatttttaag	cgcttagtgg	ccggctcaac	ttcgaaagtc	gtatcaatga	1800
atggctgaaa	gttgtgcaaa	tttgtctggt	gcgatagcga	atagacgata	tgccgactat	1860
ttggaaagta	ttatatgggg	tcaggtaact	tcgggtgtgt	aacgatgcct	cttattataa	1920
cccttttgat	tgtaattggg	atttagcaga	tgtctattac	tgatggagc	taccagacct	1980
tctatgacag	aaccgtactt	cgcaaaaaata	gaccgttcag	ttccgaatca	catcaggcca	2040
atgtaaatgg	tttcgcccga	ttactccgat	caaaggcctt	actttaaagg	cacaggctgg	2100
tgttgattta	ctaataactc	cacttcttct	aagagaatgc	ccaataatcc	gtatgatcta	2160
ctcctcttgg	ggaaagaaga	gaaagagctt	atcgagatgt	tagcagctct	ttacaaatac	2220
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tattattgaat	atgaagggga	tgtattgggg	catcttctaa	aggatttgaa	agtataagt	2340
tgatgttact	gaccagggaa	aaaccggaaa	tagtttgtct	ttgcctgaac	acagagtcgc	2400
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gttctattct	gtcggtgga	tgtttgacta	tataataaat	tcattcaaga	aagtaattgg	2580
ctcagtgatc	ttcgactaaa	atgagttatg	gtacaacggg	taactcggag	attggtaatt	2640
acaaccccaa	gcactcggtta	ctgtgaacaa	ttatactgaa	gatgctatgg	ggcttgcat	2700
tctacagcag	gcaatcccga	cctctcgtg	gaaaagcagt	ctcattcaac	ttcggtttgg	2760
ctgcaggggc	tttcaataat	cgcttatctg	cagggtagat	ttctatgtcc	gcactacgaa	2820
tgatagtctg	attgatgtcc	cgtgccttat	atcagtgggt	tcttctcaca	gnatcagaat	2880
gtaggctcta	taaaaaatag	ggtgtagacc	tttctcttaa	ggggacgata	taccaaata	2940
ggactggaat	gtatatgctt	ctgcgaattt	caactacaat	agacaggaat	aacaaagctt	3000
ttcttcggtc	tcaataagta	catgttgctt	aataccggac	tatatgggaa	attgggtacc	3060
ccaattcggt	ctatatggct	gaatatgtgn	aatcgacaaa	aaaaccggta	agcagttgtg	3120
gtatgttcct	ggtcaatcga	tgcggtgggt	aataaagtta	caacaagcca	gtactcagct	3180
gacttgagac	acgaattgat	aagtctgtta	ctcctcttat	tacaggtggg	ttctcttagg	3240
tgcttcttgg	aaaggacttt	ctttagatgc	tgattttggc	tactcggttg	taaattggatg	3300
atcaataatg	accgttactt	tacagagaat	ggggtggatt	gatgcaatta	aataaagata	3360
aaatgctatt	gaatgcctgg	a				3381

(2) INFORMATION FOR SEQ ID NO:739

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 943 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...943

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:739

aattggagaa	tagtgctgca	gcagcagtga	agccttttacg	gacagatcca	tggaagggca	60
gattcaatta	caaaagacca	agcgcgaatt	caaaggaccc	tgactttggt	ggttttccct	120
tttgtcaaga	agtctcgaaa	aagtcccaag	cgactgccac	ggaaatagga	gaatggttgc	180
ttgcaaacga	gtcggcgtat	ctgccatcga	agtggttaaag	ggctttctca	atctgaccat	240
tgctcgaggg	tatggttgga	gctgctgaac	gagatccgag	cggatatcaa	cttcgacata	300
aggtcgctac	agaggatagc	ccgctggtaa	tggtggagta	ttctctccga	ataccaataa	360
gccgtttacac	cttggacacg	tacgtaacaa	ccattggggt	atagtctttc	cgagatcatg	420
aaagccaatg	gctatcgtgt	gtgaagacta	atatcgtaaa	tgaccgaggc	attcatatct	480
gtaagtccat	ctcgcttggc	aaaagtggg	agatgggtgtg	acgccggaga	aggccggtag	540
aaaggcgatc	atctgatcgg	agacttctat	gtccttttcg	ataagcacac	aaagccgaac	600
tcaattccct	tatggctgaa	ggtaagagca	aagaagagcc	gaagccgcaa	gcaccctcat	660
ggctgaagct	cgtgagatgc	tacgatgtgg	gaggcaggag	acgaaaagg	cgtcgatctc	720
tggcgtacta	tgaatagtgg	gtatacgacg	gattcgatgc	cacatacaag	atgatgggtg	780
tagattcgac	aagatatact	atgaatccga	gacctatctc	gtcggcaagg	aagagtgtctg	840
aggggttttg	aggaaggctt	tgtttgtaa	gcattccgat	ggttctgtat	gggcggatct	900
tgacaaagga	tggcttggat	gaaaaatgct	ttgcgtgccg	atg		943

(2) INFORMATION FOR SEQ ID NO:740

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 187 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...187

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:740

ggcgatgatt	tgtgccggac	cggctttgaa	aatcttttagc	actctgtcca	ctcatccggt	60
gtcgggtgtga	gttcgcttgc	accgatgggtg	cgggcatctt	gacttcgtcg	atcatgaaat	120
tcagcaactt	ggcttgctga	aatcgtcgat	tctacttgt	tcgatcatgt	aagttttgac	180
ctataga						187

(2) INFORMATION FOR SEQ ID NO:741

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2775 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...2775

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:741

```

ggtcatactc cagtttcgac cgctgcggaa accatataag gttttgaagt caggttggtc      60
cagtaaaagc agaattagag gcaatgcccg atacctcagt agaataccat tgctgaagcc      120
ggctcccaca ctgggtcagta cgacgagatg aagatacccc aaaatacacc gaaggctgtg      180
gccagactgc gtctgcattg ctgtagatcg tatgccagat ctctatccaa cgatctctat      240
cgaaaatctc atagtctcct ttctcctcct tcgtttagtt tctcatcgcc tccacgcggg      300
gattcgtaag gctttgcggg cgggttggtg tcctgctatg gcacgcttac taccatgact      360
atcagagcta atagggcagt gctcaggtcg atctcggatc gcggaagagt gtcagcggtta      420
ttccttctac ctgtctgctc cgacaccggt ggtctgtacc caatgcgata cgaactccat      480
cagaccaacg cggccaccaa gcctatcagt ccggaaaaca gtgtgaccac taccgcctcg      540
tcagaatcat gttgatgata gctcttggtt tggctcccag tgctttgcaa tgcctatttc      600
gcgctgtctt tcattgacgg tcacttgcac gatattgcca ctccgataat tccgatgaca      660
agggtgctca acccgataat ccaaagaaaa catccatgcc attgaatatc ttgtccatca      720
tttttatgtc cgtcacgggt catcgacata gggcacttcc atatcggtag gatcatagcc      780
cttggggaag ccagttggcg attgagtagt actttgagtc tctccacggt ctctcagttc      840
gcacagacag cgacttcacg aacagtgtgc agtccagact gacccttttg cgaaaatacc      900
tgaatagggt gcgaaaggaa tatagttggg gtgaattgcc cctgttcgcc ttgcaaacg      960
cctacgacga ggaacgggat tgggacagat ttacgtatct ccctatgggc gaaatgcttt     1020
ccccgaatag acatcagccg tctgctcaca taggactatt acttttctct tcatggcagc     1080
tctgatgtgg agaggaaacg tccttcgacg agatgcgtct tgaccatttg ccgtattctc     1140
cggatacggc ttctcgtagg gtcgagtggt tccgatttcg tactgtacgt cgtagctcca     1200
ctgggttggt tagttgcg caocttgatc agatcgggat tgagcttgac cagatagtcg     1260
cagtcagcag gtgtagctct atgtatctgt ccttgggata gcctccgtac tccttgettg     1320
taccatgttg gagaagctga tcgcactcgt acccataccg aactgctcca catgtgccgg     1380
atgccatgct ggaatccgcg gccggcactc agcagcagta tagcagcagt acaccccgag     1440
ctacggcaaa gccggtgaga gccgtacgca catattcttg cgcagggtgg ctccaatc     1500
gtgcaaatgg tctaagtcga cataccgtct atcgctcttt tcaggtctta ggccccgatg     1560
atgccgtctt gatattgata atccgatccg tactgtcggc taccgactgt tcgtgcggac     1620
gatcaccata gtgatcccat cgcgattgac actgcgcagc agctcctcac ctctactgtc     1680
gtaacgctgt cgagtgtctc cgtaggttcg tccgcagaat gacctgtggc ttggcagcca     1740
aagcgcgagc tatggcaacg cgcttttctg tccacccgaa agttcgttgg gtaggtgatc     1800
agcccaatct tccgccccac ccgtcgaaag tattccatgg ccatctcatt gcgtttgcgg     1860
cgctcatgcc ctgatagtaa aggggtaggg caacgttctc cactgcattt tgaatgagat     1920
cagattgaag ctgttgaaac cgaatccgat cagtctgcct gtatctccgc cgctcggttc     1980
tcggagagat tgccgtagag ttccgctgga ggcgatactc gccctcgtcg taggtgtcga     2040
gtacaccgag gatgttcaca gcgtactctt gcccgatcca gatgctccca tgatagagac     2100
catctccctt tggcgatgtg cagatctata cccttgagca cgtgtagagg ttgtgccccg     2160
gataagtttt gtggatgcct ttgatgtcga tcattttatt gcgatgttct tttattgttt     2220
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agcagacaga ttcccgaag ggttcgaatg tgtggccgaa gctccagccg tcaagatttt     2340
ctattacacg ttgaaaacaa atgtcagaaa gaaagccagc nancagtcgg atgccatgc     2400
caccatcatg aaacctactt tgatgccgag cccttgattg tctcgggtgc aaaggaggaa     2460
gttaactgtg ttaagtctgc atttctttcg ggagaaggca ggagtcgagc ttctcgatca     2520
ggcgaagtgc ttgcctcgg cgtaogtaag ttcgaaaatc tttaaagatg aagtagaaca     2580
ctaccgcagg taccaaacag attctaagtt cataatcggt tctttttagt ttgagggtta     2640
ttacttggtt tgtttgcctc tttgacggat agtgctcgaa aaggttacac ctctgatcgt     2700
tggttaccct cttcaagaga ggtcggtcac cgtcgatcct gcttgttgtc ttttctggtt     2760
ctcttgcttt ctttc

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(2) INFORMATION FOR SEQ ID NO:742

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2101 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2101

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:742

```

aggaaataga agttcccttc atagcagaga gcccttattc gttaatgact cacaattgga      60
gggtaaagaa acctatTTTT gctcttctga tgggttctaaa gattgcatta tacattgtgc      120
ggtttttctg attttaatat atatgtctcg ggtctaattc ttctagtctg agtcgtgtat      180
tcttcgagat taaagggggg aatatcaacc cgttcaattg cagcatatta gaggtgtaat      240
agcagcatta tattgaatga atatggctgg gatgatgaac ttggaaaatt ggacaagggg      300
tatacagtac atcaagacat gataacaaaa cggagcgttt tggaaaaaat atctttggat      360
ggccttgtat aaaacagatg caatactttc tgttattggt cgattttgaa aggtagatat      420
tatggtttat ctatacccaa aaagaggata tggcatcgaa cccttatcca tggttgacag      480
acgaatattc acaatagatc catcactatt gggtagacaa ggaaaagatt ttatttcttt      540
gaaatcaatc tattagagga agttaataat gttgataatg agcaatggtg gatagagggt      600
atcaattacc agctccgcgg ttgctcttga aagacaagat aatgcagact ggggtgctgct      660
aacgagctat gatgggcata aaacagagca gcagatggta ccatcaaaga tctcttcttg      720
tataccaatg gtgcttcatt aagaaagaag agttgagtgc ttacaagaaa tgggctaaaag      780
aacaaacttc tatgggcgat ggatgcctga atgcctaaat ggaagcacgg atttttgtgg      840
aatgaatacc cttgggcaga gacctacatt cgacaacgag ataatgggaa aagaatcata      900
gctacgaagg tgtaggtttt aaattgcagt ttcatatgag tctcaattgc aggaaaatag      960
cttggttttg atgattctaa gaatggttgc ccgaagtatg catgcccaac catcacatta     1020
tggaagacta aagttataca cagccgaaag aggtgtagta agagatataat ccaccaataa     1080
atcgtttcgg taaatattcg ggttgaagct taaaggggtt agctatggaa aagactattt     1140
gtcagaatat ctttcacatt ctagatgtgt tcttggtatt attctttagg agaaaaatta     1200
atgagagcaa aaaatcatca aggttaggaa agatttatga cttatcagggt tcatatgcat     1260
atgaagatag atctttctgg caatagagcc tatgcacatc tccaacgtct cgtgagattt     1320
cttttgagag gtcaggaatt gcttactgag aagctctttg gtgcataatc atttttttgt     1380
ccatcgctcta ttcacgactt cggagtgtat gatccccctt tggggcaagg gtctttgtgg     1440
tacaaatggc aatttgtggt acaaagacac ccttgccagt gtcaagaagg gatgcttcat     1500
tgctctacc gaatcactctt ttcttttagc ctcgagcaaa cttaagctcg agacctcgat     1560
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gctgagagtg ttgatttatc gacgcagtc cgccttggtg ggagtgggat cttcttcctt     1680
tgctccgcta gagtgagata ctcgttgatg tcttttaggg agcgtagcac gctcgcatat     1740
ccttgacggg tagcccgagc tcgagagttg ttctgttgc cgtcccccg cttcatcatt     1800
atcaagaagg ctccaatcat aggttaggga tgaagtgtgg gcatgagttt cggaagttagg     1860
gtagcgaatt aagtatgat ctttcagctt gccctcggg gtgaagtttc cccaagagag     1920
aaagtccatg aagccctcga agagcaggag cttgtgacta cagtcccttt gattgtcgtt     1980
atggccttgg gtgcaaaaca gcccttaaat agggattgcg tagctcccat ctttcagcat     2040
cattggggaa gcccagggaa agaaacactt cctagagact ttgtaataga cttccgataa     2100
g                                                                                   2101

```

(2) INFORMATION FOR SEQ ID NO:743

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 793 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...793

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:743

```

cgacaaagaa ttaagaaggc gattgactac aaagttgatt gccttttttt tgatgactgg      60
ctcaggcgtc aaatcacgaa agcaaaagag gctgtcccat agagtcaggg ggcagcctct      120
tcaggatcag tataattttgt gtctctgtta ttcgggacga gagcaacggc tatagaatgt      180
gagttcttcc ggacggaagc gcgcacgtag ctgtcgatct tctcctgctc agcctgaccg      240
taacgagata tacctctgcc gactgacgga atgaatcgtc gtcattggca gccacatcag      300
cagatggccg aagactgcat gagcagtcac ctctacaagc cgagtgcctg gaaatcgagc      360
agctcctggg ctttctgttc tgttacgaat gcatcagtcg ttcggcacgg tcggtcatac      420
gagccagagc ctcttttcac gttgcaactc tggcttaact tctgtctgct ggtactcttc      480
acggatacga cgatataagt gcctgtcgtg atatggcgaa tggctgctac gacctgcaat      540
gtgtgggtacc ttcgtagatg tttgtgatac gtacatcgcg gtagagactt cgcagggtga      600
gtccttcatg aagccgctac caccgtggat ctgaacaagt catagacatt ctgattggca      660
aactcggagg tcatctcttt gcccatgggg tataggcatc tgccagacgg ctgaaatgct      720
tcattttccg cacgtcttcg gaagtcaatt tgcgctcgtg gctgatatcc tccagcactt      780
tgtaatatcg aca                                     793

```

(2) INFORMATION FOR SEQ ID NO:744

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 548 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...548

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:744

```

ggcgaaatag atgcggagct tatcgccgat cttgagatga agtttgctgc agtaacttgt      60
ggcagaagaa taggattggg taccgtatcg gcagaactaa gctcggataa tttcccgaaa      120
cggtttgacc gaagagcggg ttgcgagtcg gagtgaattg tccccatca gtagaatacc      180
ggcaaaagca ctgtcttctt ggcaacacct gtcatttcga tcgtgggcac taccgggtcc      240
acacctcgac agaggttata gcttcaagca tcccgaccgg agcattgaaa tgattgaagt      300
tccggccacg ggggcaatgc atagatgtcc cgtatagccg tatccagact gcggatattt      360
tgtttgaaag caccagctat cgacacggta atagcatgac catcaagctg agcatgatac      420
cgatcacaga gagacgaaca aaggggctat tcctttcccc tctttccctc cgcccctaaa      480
gagccgtccg ccaaaaagaa atcgatcttc atcggccctc taccctattc ttctatcagc      540
ggagaaaaa                                     548

```

(2) INFORMATION FOR SEQ ID NO:745

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 397 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...397

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:745

cataagagca	aaaacgattc	gtcaattttc	ctcaacccaa	acatctcatc	ggggaacgga	60
ttcgggggac	aaaaaaagaa	aacctgggca	tctcgactac	ttcctgccac	aagagaaaaa	120
tcaaggggga	gccgcaaagt	aaatactgcg	actccccctt	acttggtttg	agagaaatat	180
cagatactga	aagctatgta	tggaagaaca	acagtcctat	agtcgcaata	gcatcatctt	240
cttcaattat	tagttgacta	caactttcct	tacattgcta	ctcgtggcag	gacttgcaga	300
ctgacaacgt	agactccatc	gaccaatggg	tccgtcatag	actacttccg	ggttttacgt	360
ccaatcgaat	cagaagtttt	ccgtcagttg	gaaaaca			397

(2) INFORMATION FOR SEQ ID NO:746

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 772 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...772

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:746

gaatttgtgg	gcctaagaac	cgcaatcatt	ttcataagaa	atacctccgc	ctttattaga	60
ccaggaaaaag	atcgaaatga	ccattcctga	aaagccccaa	gtaagaacca	gaagtatcga	120
acgaaggaaa	caatcaaatg	atatcattcc	caaaagggtt	ttcaaaccct	cgaaagagga	180
aataatataa	tcggtgaggg	gttggaagg	tattcctttc	tgaccatcag	gacggttgta	240
aatccagttc	ccgtcctgct	tttatttcgg	aagcgggac	atcgccctgc	acatggcttt	300
tcggtctatt	aagttcgggt	ctctatgctg	actgtgataa	agatatccgg	acaaaataga	360
gttctatcct	cctgtagaat	gtataaagga	ttggagaacg	actaggctgc	tttgaggaa	420
tcttttattt	acggaaacaa	atttctttcg	gacaactttt	gcttcgcatt	aaagaattac	480
agcagcgatt	cgaagtatcg	gcacaacggg	caagtagaaa	gtttttgcaa	aatattctat	540
tcctaagggc	gtaatcgttt	tccatattat	ctctcaaaag	gtctctcagc	cctcgaaaga	600
ggaaataata	taatcggtgt	aggagttgga	aaggatccct	ttctgaccat	caggacngtt	660
gtaaatecca	attcccgtcc	tgctttattt	cggaagccgg	gatcatcgcc	taccacatac	720
gtctttcggg	cttttggtcc	aattccctgc	ttaattcacg	gaagatatcc	ag	772

(2) INFORMATION FOR SEQ ID NO:747

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2249 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2249

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:747

```

cctctgcttc ccgtacagcc gtatgtgccaa aaagcgagaa gcctgtaatt cacctgcagc      60
atagacattg ggcagggaag tttgcatcct ctcathtagt ttacaccttt gccggcaagc      120
accaatccga gcgactcgaa tccttgcgca cggggcgacg tcccacactc atcaggatac      180
gttctccttc gatctcttgc tttctccttc gtattctacc gtaacagctc cgttgcgaaac      240
cgatgtactt tgtgcccagag gtagaatttg attccttctt tttcatagtg agcggtagca      300
tagctgcatg ttccgggatcg ataccgttga gtatttccgg cagatctcca ccacgtgcac      360
ttgcgtagcc ataccgttga agaaagaagc gactccattc cgatcactcc accaccgatg      420
atgacgagag aggtcggaat cctttgttct gtagagcttc acggtttgtc caatactctg      480
tctgctccac ccgggggatgg gtggaataaa cgtctccgaa ccggtacata gtagcagggtg      540
gcagctttgt actgtgcttc gccgcgagta atgccgatga tgccgtctca tcgcatcccg      600
ttacggtagc ttctgcccgc accatctcta ctccggctct gtcaggcggtg aacggatgcc      660
tgcatgcagc ttgcgaatga ttttactttt ctggcaatca ccttgccgag gtcaagtcca      720
tcggccgttc cacttctgca tatttagatg ccgtagcaat ttgatgtagc actttggccg      780
agtaagtagc gtcttggtcg gtatacatcc ttcgttgagg catacaccac cgaagcattc      840
ttctcaatta ggagggtttt caggccacct ttggcagcac gtcggcagcc gtataaccgg      900
ccggccctcc accgatgata gctaagtcgt acgcatagtt ttatagattg ttgcgttcga      960
tatccttaaa gtagttgtac tgcccacttt cagctccaca caggcagctt cgtcacagac     1020
aatgatactt gacgatggag ctgcaaggct gtgatcgctc acatttggct gactgcactt     1080
ccacagcttc acgaagagca cgggcttttag tatgtccggt cagcagggtc ttacttcccg     1140
tgcatccata attgttccta ctctacgggt gagagccggt tcggaacctg attcgtatcg     1200
ttgtcgaaaa agcgactgtt agccatacgg tatctgtagt tagcgtcttg atacgggtgc     1260
gagaggtaag agaaaccccg gctcattgaa tgcgatatgt ccgtcaggtc ctatcccgcg     1320
gataaaaagg ctatgcctcc ggcagcttca atagctctct cgtatgcata gcctcggccg     1380
tcaggtcagg agcattgcc a ttgagaatgt ggatgttctg agcaggatgt cgatatggtc     1440
gaacaaatgc cgatgcatga atgaatgata ctctccggat gctctatagc aaggcctacg     1500
tattcatcca tgttgaaggg attacgtggc ggaaagatat gcatccttct ttgcatgctt     1560
tcactaacct ctgtacattc ctatcggcga agaacctgtc ggtagaccga gtacaaagggt     1620
ttttcggccg taggagctgc tttatggata cgctcgatga cgtagtggct gcccatctgg     1680
agagcttggt gtaatccggc tctatgatta atctcttgta agattggggg tagtccagta     1740
gtggatatga tatattactg acgacggctt tcagacgttc ggctatttta ttgccaaagt     1800
cccaaccctt ctctacaggt catccgtggg agacatcttt tgttccaaag gttcgccctac     1860
cattcccaac ccatttcttc tgcaaaaagg actatctttt tcacagcctg acggcccatg     1920
taaaggagcc gaacacgctc agatagcgat cttttacctc cgaagacgga tcatttccat     1980
gatattcttg atcggtgaaa agatctcatg ctgtatgtgg ggctaccgat tatcactgcc     2040
ttgtacttaa agatgtctcg caggatgtta gatgccggac tgaatgctac attgtggcat     2100
acaacgtgcg gatgcctnct gcagcaatgc cctgtgcgat cgtatctgcc aatactnctg     2160
attgccgtac atagtgccgt agagaatcac tgcaccttct tcggctcgta tcggctcctc     2220
cgatcgtaga ggtcgaaggc ttcagagaa

```

(2) INFORMATION FOR SEQ ID NO:748

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1243 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1243

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:748

```

acgttttttag gagcatgaaa caaaaaatTTT cacgaacgta aatggggacga tcgaagtttt      60
acttcgggtct cgTTTTTtcat ctctatttcgc ctatgaaatc ctaagggtctt ctttttagaca      120
aaaaatcttt ggccaaaatc cttctatggg agcatcgagg aaatgaagtt gcagtcctcg      180
gtcatatacc taatgaatag gggagtggat cggatcggtt tgctccctct cgaagagagg      240
tttcttcccg tttcgggtctg ctttatgaga attattcgaa gcagtcgttg gccggtttaag      300
gtgtttcata tacctttgCG ctgcaatgca atcataaaga ctgtttctcc atgttggaaa      360
agctcattat tctggatttc ggttctcaaa cccacagctc atcgccagac gaattcgCGa      420
gctgaacacc tactgcgagg ttatccctac aacaaactgc cggaagacct ctCaggagtG      480
cgaggcatca cctgtcgggg agcccttatt ccgtgtatga cagcaaggcc tttcgatatca      540
actgagcgaa ttacgggggca agttgcctct cttgggtatc tgctacgggc acagagcctt      600
gtccatcaag ccggtggcaa agtagagccg tgcgacatcg cgaatacggg cgaacacatc      660
tgacctccg gcagcctgat gatgcattgc gacaggcctg caatccggca ctacggtatg      720
gatgtccac ggCGaaccat tacgtcattg cctgaaggat tcgaggtcat agcaggatcc      780
gaggtgtacc caatgcagca tttcgcatcc gaggggagaa aacgtggggc gtaagttcca      840
tcccagatc taccactcgg aagaaggtaC caaactgctt ggaacttcct cgatatatgc      900
ggtatgaagc gtgattggac tccggcttct tcatcgaaGC gactgtgcag gaacttcCGg      960
aacgcttagg tgatgacaag tgatcctggc actctccgga ggtgtggaca gttcggtggt      1020
ggcggtgctc tgaacaaagc tatcgccgcg aacctgactt gtatattcgt cgatcacgct      1080
tgctgcgtaa gggcgaattc gagcgcgtac ttcaggacta cgagcactgg gtctcaatgt      1140
aatcggggtg aatgcataag aaaaattctt cgcagcctta gcggcggttac cgatcccagG      1200
caaaacggaa gattatcggt cgcggttcat cgaagtgttc gac      1243

```

(2) INFORMATION FOR SEQ ID NO:749

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1042 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1042

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:749

```

gccgaaggat tcgacgggct gatactccct gcggaaaatg cacgtgaaga gccgtcgtga      60
acaacctcaa tgtctatggc gtgaagcata ttgcagaatg atcagccatt tcaatggggg      120
cgatcagcta cagccacta tagtcgaacg cgcagggaat ttttcgacca tcagcagcag      180
gtgtctttcg acttttggag gtgaaggggc aggagaaggc caagcgcgcc ctCgaagtgg      240
cggcccaggc ggacacaatc tgatcatggt cgggagtccc ggcagtggga aatcatgatG      300
gctaagcgaa tgcccggaat tcttctcccg tttacactta gcgatcgctc gaaacgacca      360
agatatactc cgtggccgggT aagctgggag tcattcgatg ctctcgaccc aacgccttt      420
ccgctcgccc caccattcca ttcttcgcgC gcaactctgg gtggtggcac ttatccacag      480
cccggagaga caagtctggc gcacaatggc gtgctctttt tggaCgagct ggccgagtta      540
accgctccgt tctcgagggtg atgCGgcagc ctttggaaga tcggcagaca ccgttttcga      600
gagccagaat gacggtggat tatctgccc gattcatctc gtggctgcca ttgaatccct      660
gtccttgCGg ctactacaac catccccacg cccttgCacc tgCGcgcccG gacagggtgga      720
gaaatatctc agccgatatc ggggcctctt ctggacagga tcgatataca ggtagagatt      780

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acgctgttcc	ttttgagaaa	atatccgata	gccggccggc	cgaaagcagc	gagaaatccg	840
ccagcgagtg	gttgccagcac	gcgaaatcca	aagcaaacga	ttgccgacta	ctccggtgtc	900
cattgcaatg	cccagatgga	cgacaaattg	agaaccgcta	tgcaactgcc	gacgaaaagg	960
gacttcaacg	attgaggacg	ctatggaacg	cttcgacctc	tctgcacgtg	cctatggccg	1020
tatcttgaag	tggtcgtac	ca				1042

(2) INFORMATION FOR SEQ ID NO:750

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 524 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...524

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:750

ggactatg	cg	cacacg	ccgg	atgcact	gat	caatgtattg	gataccatag	accactggca	60
aaatcg	caca	aggtgat	cac	agtggtagga	gcaggaggaa	tcgggacaaa	ggcaaacgtc	120	
cgatcat	ggc	aaaggaggca	gcccgc	aaaag	cgaacgtttg	atcctgacat	cggacaatcc	180	
gcgtgat	gaa	gagcctaaga	aataatccaa	gaaatggcta	tcggactttc	gacagaagac	240		
aggaaaaaac	actgctcatt	actgatcggg	cggaagccat	ccgcacggcc	tcgagctggc	300			
agagaaggga	gactttgttt	tgatagccgg	caaaggatcat	gaacttatca	ggaaatcaga	360			
ggtgtcaagc	accattttga	tgatcgcgaa	gtgtctgcga	tgccatgtcg	aaagatcgta	420			
tcgttcaata	aactctatag	acccatgttg	tactatctgt	ttgattatct	cgaaaagcta	480			
cagctccccg	agcgcgactg	gtccatacgt	gtcatttcgg	tcgg		524			

(2) INFORMATION FOR SEQ ID NO:751

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 539 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...539

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:751

gcaccggcga	cgatgacgcc	cgagcaggct	ccgatggatt	ggatgatcaa	ttctgccccca	60
gcatattttcg	gcgtccccgaa	atgggtgccga	tacctacgcc	aggatggcaa	tggggaatggc	120
ggcttcgaat	acttgccccga	ccttcagccc	agataagctg	cggcagcaga	gaaaataact	180
gtcatcacca	aaccacag	acagaatagg	aggtaatctc	gcgcggcgta	ctgccggcag	240

gcatecccggt	tcgtactctt	cgccccggctt	cagctcccga	tatgcatttt	cgggagcttg	300
ctcgttgtct	gtttgttttc	catataatat	atgtgtttga	ttgatcgttt	tttgaccgcg	360
cctccgatcg	caataagagg	gcggagaatc	gtctgaaaca	aagcgctcaa	atatatacaa	420
cttcgttgaa	aaccggtcct	tcgatcggac	aggaagcccg	atcattcccg	gcagtatatc	480
cgtgcgatgc	cttcggagtc	gatagactac	agaccgccgc	tttcgccgcc	gccttgctc	539

(2) INFORMATION FOR SEQ ID NO:752

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 626 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...626

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:752

cagtgtttga	attgactctg	atatgccgaa	aaatacgaaa	aaagtcgaaa	gaatcaatat	60
cctccgacaa	tcaacgtgaa	tacaacaatc	aaaagtaaac	agactcttct	ttatctctaa	120
tccctgagat	ccagaaagaa	cgcttgtag	gcaggtcttc	tgacttattc	aaggcttcgc	180
tgcttccca	tacgatctgt	atagtggctt	tctcgtggca	aaacccttac	atctgaactt	240
acagcgaggg	tacagtccca	gaatttcact	gggttccctt	ttcattctac	actcatgaac	300
cggtgtagaa	aaccattgac	acggcaaaga	tattcattat	atcatactag	tgcggaatat	360
tgaagaaaaa	aatatggatt	tgtttgagga	tactttcagt	atacgtcatt	aaggctaata	420
gggtgtgaaa	tgccgctgat	atttatgtgt	tcgtgtgtaa	ataaaaactg	aggctgtctc	480
gtcatgagac	gcctcagctt	catttattgg	taggaatatt	tgggatattc	cgctgcagta	540
ttactacaat	ccgattccaa	gcgttctctt	catagatttg	ctctgatggc	ccttccttca	600
atggtatgcg	atccgcagaa	cacccat				626

(2) INFORMATION FOR SEQ ID NO:753

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 967 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...967

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:753

ggcttatgct	catttatagt	atagtgcattg	caactctctg	aacaaaagga	ttgaaatagg	60
aatcaggagat	acttttgaca	gataagccca	agtatgcattg	ggatgatcaa	gtctcgatca	120

acaataaatc	agtgtgaagca	tgctgtcggg	ttcagcactt	cgggcgcgaat	ctcacggagc	180
cgatcggagg	taatggatcg	atacgatgga	aaatatccga	aaggggatcg	tatttgccat	240
agagggcata	ctcttgccca	atgaaaggaa	tgtggactcc	ttattgtcag	ccgaacgatg	300
agctgtcctt	tgaactgtcg	cttggcagat	tccagttcta	tcgagaaaaga	gggtgttcga	360
tcaaatagcg	caactctttt	ctgacaagct	cctggctgct	tccgcatatc	ggggagcgca	420
gccgaggtag	atattgaaga	ccccgtatcg	gaatagggcg	tgtaattgct	ctctacgtta	480
tagacatagc	atgctcttca	cgcagtgaga	gattgagccg	ggagttcata	cccgccctc	540
gaggatatta	ttaagcagac	ttagcggaat	gcgtctgtcg	tcgtggagga	atacgccgga	600
ccgcccatga	ggatgtgatg	ctggtaggta	tccttgctcg	tctgatggta	cgccgcagaa	660
agccttctct	gaggggtatg	agaggatacc	atcgggtatta	cggatggaga	ccttctcggc	720
cggattaagg	ggccatcggg	caggtctgct	tctccggcca	ggaagaagat	catattgtcc	780
ggccgtagtg	gcgacggagg	aagttacgac	ctatttgtcc	cgtgatgcgt	gatcagaagc	840
ctctgtgccg	agaatggtat	gtccgagagg	atgatgaccg	gaaaggatat	tctcgaattc	900
gtcgaatata	agttccgagg	gattggtctt	cataagaaat	cgattttcgt	cgaataacaa	960
ccggttt						967

(2) INFORMATION FOR SEQ ID NO:754

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1495 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1495

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:754

tcggcatttt	cggttcgaaa	atccaagttt	ccaaccaanc	cacagacttg	atcgctcccc	60
tttgcatagc	aaatctgtga	ctgccggttc	atccggaaca	ggaaactttt	ttcttggtat	120
cgttcaagaa	cgnaaagtct	gtgccgacga	ttggcacaag	tccttcccgg	cctggttagag	180
attgaggact	gtcagcaatc	ggactttcgc	atcggtcatt	atgacagacg	aggaagtatt	240
gaacaccgcc	aaacgggtcat	tgttatgctt	aaagggataa	atccgaatcg	tgcgcacgat	300
aattgcaata	cgtagttaga	gatggcatac	gacttttacac	aaaattccgc	aacagcctgg	360
agtacagcta	tcaggaagca	acccgtctcg	gctcgtagcc	gtgacgcaag	atatgctcgt	420
actcggatc	attcgcgacg	ggacaatggc	gcgatcgaca	tcatgcggca	ctatgggatc	480
aactgttacg	actcaaacgg	ttgatcgagt	tggaagccat	cgccgagagt	ttgcctgctc	540
gcctgaggga	tcgcccattc	tcaccccttc	ggctcgggag	gctatcgaga	tgccacagac	600
atctgtgccg	acatggagga	cgaggccgtc	agcccggcca	tctgttgctg	agtatcctca	660
actcgacaca	ggagagctta	gtacaaagat	atztatgaaa	caaggtataa	aatacgacac	720
catcctgtcg	gattattcgg	acagcgcaac	ccctccgaag	ggaagtctcc	ctccgaaatg	780
gagacctcga	cgggtacca	gacaacgact	tcgacgacga	agaggacgaa	tccttccgcc	840
ttccgggaat	agcgggacag	gcggaggctc	cggcgacgcc	ccgaacagaa	taccggcgga	900
ggcgatacta	ccaccacgac	acggagtgga	gcgacagccc	tgactggagc	accttcggga	960
ccgacatcac	tgccatggcg	cagcaggcaa	gctcgacccg	gtagtgggtc	gggagcagga	1020
gatcgaaagg	tgatacagat	actcagccgg	cgcaaaaaga	acaatccggg	gctcatcgcg	1080
aaccgggtgt	aggcaagagt	gccatcgtgg	aaggactggc	cgaacgctcg	tgaacaggaa	1140
ggtgagccgt	attcttttctg	acaagcggat	catcagctcg	atttggctca	gatggtagcc	1200
ggcaccaaat	atcgcggaca	gttcgagagc	ggttgaaagc	cgtgctcgat	gagctgaaga	1260
agaatccgca	gatctcctct	tcatcgacga	gatacatacc	atcgtgggag	caggctctgc	1320
agcggatcga	tggatacggg	caatatgctc	aaaccgcgtc	tgcccgtgg	acggtagcat	1380
gcacgggagc	cactacgctg	gatgagtatc	gtaagaacat	aaaaaggacg	gagcactcga	1440
acgccgcttc	cagaaggtgc	cgatagcccc	tcgactgcag	aagaaacgct	gacca	1495

(2) INFORMATION FOR SEQ ID NO:755

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 625 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...625

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:755

tcagctggca	gctcaccctt	ttcgtcttca	tctcctacc	gatagccggg	ggctgatggg	60
taaggtgggc	aaaactctca	agcgcaagag	tctggaaggc	agaatcagtg	gggaagcctg	120
atgagccaga	tagaagaaac	gcttggcgcc	tgcgtatcat	caaggcattc	aatgccgaga	180
aaaagatgca	ggatcgttcc	atcgtgccaa	cgagcagttt	cgccgtacga	cgatgaagg	240
cttccccgcc	agcagttggc	acatccgatg	agcgaatttc	tcggcacagc	tacctagcca	300
tcgtactgtg	gtatgggggt	acccttatcc	tgaacaatac	gaggagatcg	atgcttccac	360
ctttatatat	tatctggtga	tcttctacag	tcgatcaatc	cggccaagga	gctgagcaag	420
gcacccctacg	ccattgaaaa	gggttgccct	ccatgtcgcg	cgtggacaag	atcctgatgg	480
ccgagaacga	atcaaagatc	ccgaacagcc	ccaccccggtg	gtgttcgaag	aggaggtcgt	540
tacgaccatg	tgtggttccg	ctacggcgaa	gactgggtgc	tgcgcgattc	tgtctgacaa	600
tcccgaaggc	aagacggtgg	cattg				625

(2) INFORMATION FOR SEQ ID NO:756

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2464 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2464

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:756

acttgatttc	gtatgcaatg	atcgtaaaga	gtttattacg	ttttgtcttc	aggtgctaac	60
gtggatgnca	gaaacccgaa	ggtttgccag	gttccggcaa	agaactatac	ggaaaactct	120
ttgcagataa	gggatattct	cgcctaactc	tttgaaagcc	tctttgatga	cggcatccat	180
cttgtaaccg	gaatcaggca	aatatgaaga	acaaacttat	gccctcgtgt	gacagaatca	240
tgttggaaaa	gatacatcat	agaatgcac	aatgatatgc	tgaaaaacac	cggcaacttg	300
tacactcaag	acatcgatca	atcaataact	tcatcatgaa	tccgtctcag	ctatagtggc	360
atactgtttt	tacgacaata	aacctgaaat	cattttggaa	agagcaccca	taaggcagca	420
caataaatat	ctccttagct	aagattaggt	tcgtgttctt	tgaagtaacc	tactatcaac	480
cacttatcca	aggggaaacc	caatgggagt	gtagcatgtc	agtaaaggca	taagtccaca	540
attgccaaagt	ggcgactgaa	tgacgaggta	gaaagacaag	cacaaggaga	agcctgaatt	600

gggtgaacga	tagtccagag	gctgttaa	gagccgtacg	ggaggcaatt	acaaacgcca	660
ctccgtagta	ctttccggtg	tagtctacg	attgaacaaa	aggtcgaacg	tcgcatccga	720
cagtttgctg	cactatagat	tatgcaagct	aaatggggat	tgccctaagtc	gaggagccta	780
aaggtatgag	gtatagcctc	tgaaaacccg	atatggcaac	ggagctcccg	tagaatccga	840
ggaggatagc	atcctgtaca	tggcgaagat	gaacagttgg	aactttatat	tgaaaagcat	900
gtaatctcac	tctatgtcaa	acaaatgagc	gttcagatat	atcagatata	gaagataagt	960
tttgtgatat	atacgaaata	gcctttctac	gagtgccata	tccattatta	ctaataaagt	1020
aatccaatcg	cccttgaatg	gcaaaattct	cctcttgaca	ggcgttatat	ggttgtctga	1080
ttcaaagtaa	gagaatcagg	caagataatc	aagaaaacgg	tttatcttgc	gtaggactta	1140
acgacagggc	tataaggaag	ttcttgggat	gtggatggcc	aaggcgagag	ttcttcgttt	1200
tggatgggca	tattgaccga	tttaaggctc	gtggtgttga	ggatgtgctc	attacaataa	1260
cggataatct	caatacttca	catacatcat	taaaacgggt	ttccccattc	caccaccaga	1320
tattgttgtg	catcagatac	gcaattcctg	caagtatgtg	gttttggaag	gaatgaagga	1380
tgttacggct	gacatgaggg	aaatatatac	ttccgtaaac	cagaacaagc	ggtatcgcca	1440
ttatctcact	tcgagcaaaa	tgggggttcaa	gtatagacat	gcggtacaga	gttggcatcg	1500
taattaggac	gatttaaatgc	tttctttgat	ttctctgtag	agatgaacga	tttttacacg	1560
atcaatctat	tgaaaatctc	aatgggaaaa	ttcgcaataa	catgaaaaaa	agatgtcctc	1620
cctacagatg	atgctcttcg	caagtctgtt	tggttagctc	tgcaaggata	gaaaagaagt	1680
ggacaatgcc	gataaaaaaa	aaccgggatt	gggcttgaat	caattttattg	ctatatattga	1740
aaatagaatc	gagatttagt	cgaggctaaa	tctcaaccca	aattatcggt	tacacaaaat	1800
aatggacagt	tcctttcgac	tactcatatc	gctacctttt	actcctttga	gtgaaaaatt	1860
ctctaccaga	tggtcacact	tatcctttgc	atcttcaata	tcttgaaatt	cactacctta	1920
aaattgtttc	ttttacagca	ctcgataatt	ccataatgta	ttcattaatt	cgtttttttt	1980
catcttctgt	tttttttagag	acttcctcag	ggtagtcttc	attttcaaat	ccagccgatc	2040
atztatatcc	cttttgtttc	taatcctatt	ataagacaat	cttgtttggt	tatattttctc	2100
aaaaaatctc	tgtgagatgc	attccctcaa	taataatttt	ctctctcctg	cttcgaaaat	2160
ctccagcatc	tggtcaatca	tattcgaaac	attatttttt	tgaattttta	ttcactatca	2220
tccattctat	acgtggatgt	ttgataagtt	tttcatctct	agtgcataata	cgaaaaaaat	2280
tccgaacccat	atcagtgga	agccccctga	aaattgatat	ttatttgata	gatgattgga	2340
tattatagat	ttccagtaaa	agagcctcca	actacaacta	taacacaagg	tcttgatatat	2400
gtgtgaaggc	atctattgat	tttttttccc	ataaatccct	aaaatgtttc	caaaagccca	2460
tcct						2464

(2) INFORMATION FOR SEQ ID NO:757

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2523 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2523

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:757

tcattctccc	aaggatagac	gtagctgac	atcacatgca	gcgatggcga	tctatgtctg	60
cccgcagagg	gatgtagcgt	tcgagatagg	ccgaatcgaa	gagacagact	tcgattcggc	120
agctttgtta	ttgctacagc	ccaaagcgtg	atcaaagaca	atggaaagag	tagcaacagc	180
acgctgcgca	tggattcatc	atagtgaaag	attgtaatcc	cgatagattc	attttactgc	240
cacaattttac	gcaattcatt	cggataagcc	ttttttttac	gcgcccgtgc	acatctacga	300
gcctgtttcga	agttattaga	gtatcgaaaa	ttgcttgcac	tttatttgaa	tctagtacgt	360
aaaaacaact	ctgctcagaa	tcttaacata	ttccatgcaa	aagaggccct	ctgtgaagaa	420
atgcttcttt	aaggctgttt	taatattgag	caccttaaga	tgttactcga	attctgatga	480
ggtggatctc	tcaaacggtc	aaatctgttc	atgtggcgga	tgaactatta	tctttggcag	540
acggagccgg	tctttccatc	atcgaatgag	gtgagctcgg	catttccctt	tgtgttaaag	600
tcttaatcaa	agacttattt	gtgttcgata	tgcagaggaa	aaagatagcc	ttatcgttgt	660

atccggcgga	atggacagcg	ttacgcgatg	tacgagaaga	gagcctccat	cgctttggct	720
ctcagttttg	actatgttcc	aagcataatg	cccgtgaatt	gtcttttgcg	cgtctccatg	780
cagacgtttg	ggtgtggagc	atctgattat	ccccctcgat	tttatcgggc	agtttttcag	840
agtgatttgt	tgcttagtgg	aggagatatt	ccggaggggc	gaacgacgag	gaaaatatga	900
agagtacggt	agtgcctttt	cgtaacggca	tatgctggcg	gtagctgcgg	ggttagccga	960
gagcagggga	ttgaggcgga	ttatatcgcc	aatcacttcg	gcgaccatgc	catatacccc	1020
gattgtcgtc	ctcattttatt	cgteccgatga	ccgaagctgt	tcggtgcggt	accacgaagg	1080
cgtgctcata	gaagcacctt	atactgatat	tactaagaca	gatattgacg	gataggagct	1140
tcattgggta	tagactatgc	cgagacttgg	agttgcacaa	gggggggggtg	tttcattgtg	1200
gcgtttgtgg	tacctgtgta	gagcgaggga	ggctttgcac	gatgccggca	ttccggatgc	1260
caccgagtac	gaagttgagt	atacttcatt	cggcacgaag	ttatcaggcg	cgatgaagaa	1320
aatgggctgc	tatccgatac	gcatggctat	atcgacgaaa	agtaccggat	actttcgcgc	1380
attgcatga	gatttggcat	gccggtgaca	tcggtctctgt	acggtagcgg	actatttgtc	1440
gggtttggct	ccgctgcgtg	ctgtctatgg	aatatagacg	ggcaagacat	tcgtctgcag	1500
tatcccgaag	ttctgcgctt	tgtgtggaag	aggtgaaagt	gtttatgacg	catatcgggg	1560
gataccccgt	cggtacgaac	ctcgtatata	tcgaatgctc	gtgcagaacc	cacctcgctt	1620
tttgtctgtg	ggcatagtca	tattctcaaa	gctatgtacg	ataagagttg	gatatgctgc	1680
atctgaatcc	cggagctgca	ggtaagtatg	gttttatgct	gttcgtactc	tgatgcgctt	1740
cgtgatcgat	gggcgagata	tacggattta	caggtgatag	aattggccga	tcgatagaat	1800
attaaagatg	aaaatttcat	tctcaaagct	tgcattttct	tctccctgct	gttaggcgga	1860
tgatatcctc	ttcgtgtcgt	ggtggagcaa	ccccctcttc	taccagtggg	gttcagctcc	1920
tgctaggatc	gatacgcctg	aaattaaatt	gctcttcgcc	gagatatcat	gacgcattggc	1980
cctcagatag	aaagtgcaaa	gtgcgaaggg	ggcgcgtgta	cgacttttcc	tcctcttttg	2040
atactttggc	atcaagaaa	gggctgccga	tcttgccatc	ggcaatctgg	agaccacctt	2100
tgcaggaccc	cctacagcgg	ataccccacc	ttctcttctc	ctgacgctat	gggtgagctc	2160
ttaaaaatgc	cggtttctgat	gtgctgacta	ctgccaaaca	tcatatgccg	ataagggaaa	2220
aaaggggatt	atacgtactc	tcgatatgct	ggatgtctgg	gtatagccca	tacaggcagc	2280
tatcgagata	ttttcgatcg	ggaaaaatga	ctcctcttat	ccttgaagta	aaaggtgtac	2340
gcatagccat	acggcctata	cttatggtag	aaatggaatg	cctgtaccgg	ctcctacctg	2400
gtggatccta	tcgatacggg	catgataaag	aaggatttgc	tcgagcgga	tccttaggtg	2460
cggactaccg	catcgttcag	attcattggg	gaatagaatc	agaaaggagc	cggggccgag	2520
tcc						2523

(2) INFORMATION FOR SEQ ID NO:758

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2556 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2556

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:758

tggcccccaa	ggtaggaanc	cgaatcaa	at	ctcctattat	gaacgaaggt	ttgtctcttt	60
tccggtttgc	aaactgcaaa	caaaggcctg	acggcaaaag	gcaggagtcc	tgtttcggct		120
cctgcccttc	gagaccggac	ggatcggtgt	actacgatac	ggccgttttcg	tagctgctat		180
atataataag	gtataggaga	acgtggggga	atggatccca	tctacctcta	ctcgtctgcg		240
atagctcggt	cggaggcaca	cgcaaagcac	gcagtagcgg	aatgaaagta	ccgaaaaaac		300
catcagcagc	atctgcaaat	aagtacaccc	caatccgagc	aaagacgtcc	ccggccgaga		360
ggaaacacct	tgatgtcgca	aagatcggtg	tgaacatgac	gtaccatgcg	gctacggccg		420
caggcaggaa	agccagtgtc	acagtataat	cccctcgccg	aacatgagcg	agaatacgct		480
cctgttcgtg	atcccactac	acggcggatt	cctacttcgg	cgcgtcgcgtg	ctcggttcga		540
cccagaaggt	gccgacgata	ccgaggaata	tatttagcag	aaggaagaac	cgatggccag		600
atgattattg	atctgccgga	caggatcggc	caatatcctg	cccgttcttc	actgacagca		660

ttcatcgtca	gtacaggata	ggtatctcct	tggtcacggc	tttcatcctt	ttcacgaact	720
gctctttgaa	gtccgcgtat	ccgcttcggg	agagacacgc	agatagacgg	agtaagatat	780
gagtcgtttt	gcgaaatgta	ctcctcgggtg	atgggcttta	ggctgatata	gccgtacttt	840
cggcttcggt	tttgggctga	tccggatga	gtcctcgcag	tgctgattgt	atcggatact	900
cttttcgctt	tggacgccat	cgacaacgga	tccatattgt	agttgatgct	atccgacatg	960
cctatgtagc	ggcggtcgct	tctcgtcctt	cgccattgac	ttctccaca	tagtcgaggg	1020
cattgcgcgg	agatagtagt	cccgttggag	atcgttcatg	tgaagtttgc	cgaatcggtcc	1080
gccatctctt	ccggcgaaaga	accatcggct	ccatagacac	gaaataaccg	aaataatccg	1140
gcgaaacat	tcgatcctca	acgtttatga	gtgatagggtg	tccagttgaa	agctactggt	1200
acttgacgaa	gaggaataat	gaccgcccac	tgttgagagac	aagccgcttc	cactccggga	1260
tatgcagcga	tcagtcgagg	gtttgcatca	tggtttttcc	ctgatccgca	gacctctctt	1320
tccttttcca	tccttatctt	tttgtacggt	tgccagcggtg	atgcggtaca	cggttctata	1380
tcgtagttca	atgggcgtgt	ccaagcacgc	agagctgtca	cgcatagtcc	gtgacgaacc	1440
aaagcaggcc	acatacgacg	agcatctcca	ccatatccag	aggttggcac	gacgttcggc	1500
gcggatgatc	ttgataatag	atgtagcatg	ataatatctg	tatgatgagg	ttagtgggag	1560
agggattcac	gatgggtgtc	ttggatatgc	gccaggcagg	gataaaggca	ctgagcaatt	1620
gatcagcaca	cagaagacga	gagctatcac	gaaaatgacg	ggattgacat	ggctccggtt	1680
atgtcgccct	gcatcattcc	ccggctcccc	acgctaggag	ccacgaggga	aagaggggcca	1740
tgaccagata	actcaaaagc	aatcgaaagc	ccctcctatc	agactgatca	gcatattctc	1800
tgccagcact	tggggactat	atcggatcgg	acggctccga	aagagcgctc	tacgcccatt	1860
tcgccaacac	gcgacgcata	cggctaagg	tcatacccga	aagattgatg	gcgggatgca	1920
cagaaacact	gccaggagga	gaatgaagcg	acggcgatac	ccagaggttc	ggtatcgtca	1980
cggtgaaatt	tgcggtgcat	cgctcgtgaat	gatcggcagg	ctggccggga	aaactgatat	2040
tgaacttctc	ctgcacacat	tgcacttggc	agtcaaggcc	ccgacttctt	ccttgatggc	2100
atcgaagcct	tccggctttt	ggccagacag	attacattga	atctggagaa	taggttttct	2160
tcactctttc	ttcgtacagc	ctgaacacag	gcattccacac	atctcgtaag	cgaagtcgca	2220
gaaaggggtc	acatggcgca	ccactccgca	gacgtgtatt	tgcgcccatt	gatcagagct	2280
tgccggccga	cggcctcgct	cgagagccga	agaaccggcg	cgccaacctg	tcggtaatga	2340
ctgccacggc	gagttcgatc	gggcatccgc	ctcggtataa	tgcttgccgg	cgacgaaaga	2400
aaatcgaaca	cctgccagaa	agcctcgctc	gtatatctcg	tcgtaacggg	acttctctgct	2460
cgccttcgcg	tacgcagaag	cgcggttcaa	ggcccggcta	ggtatggaaa	gtccctcgaa	2520
agccgttacg	gcttcgggtg	tttcgagctg	cggggga			2556

(2) INFORMATION FOR SEQ ID NO:759

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2069 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2069

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:759

agcttgcgac	tgatattgag	agccaagcgt	atcaagcagc	ttattcagat	atcctttttg	60
attgctttga	ccggatccgc	ttgaaatcga	agtacagaga	aagtaaggag	ccgttatggc	120
cacggctctc	ccgtctgtag	cgtatatattg	ccgcgaatag	gtgccagatc	caccggttcg	180
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gaatctaccg	aataccacga	gcaagaatac	aatcatcaac	gctcccacga	tgcgtagcgg	300
cgtacggcct	tgatggtcac	cggattgttt	gtctcttcct	gttcataatc	gtgttttatt	360
tcttgccg	atcagtatcg	acaggacggg	aggaatgtat	ggcggagtct	gcgagagtgt	420
cagctcgagg	ttttgcgatt	gatggctttc	tctacattca	gtttctgact	catagcagta	480
acttcagaag	tttgaacagg	gcacgatagc	gataatcttt	cacttggtcc	tccagacggc	540
tatttcgcgc	acctgctcga	tggcttggtg	gccgttccaa	atgttaatac	ggacatcacg	600
acgatgacca	gtcccaactt	ccagttgctg	gctatcctgg	gtgatcgagg	aaagatcctc	660

ccatcacggt	ccaaaaacta	ttcttttctt	tgaagccgcy	gagtaagagt	tgtgaaggaa	720
tgcttcctct	tctgtgaggt	ctccactca	ggagagctcc	cttctttctc	gcaaaggatg	780
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tgcgagtgat	ctgttgccaa	ggactctgtg	ggctccgtac	agacgcaaag	aatcttcatc	960
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gccaatatgc	cgtcgactcc	atcctctccg	aataatccat	gaagttggcg	aggtagcgga	1500
agttggaagt	tacaaaggta	agcgctcatc	ttggagaatg	tttcgacaag	catcggcac	1560
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ggatatgtct	agattcattg	ctgtccgata	aacctcagag	tagggataaa	acgacaagta	1920
attccagtaa	ataggtcgct	ttagagcggt	tttcgcttta	taagcctcca	tccaaaaaga	1980
ttaggtcccg	gcgggggttc	ttccccttga	aattgagttt	cccaatcacg	ttccggatga	2040
ttaaagtgac	tgtaaaagcg	acatatctcc				2069

(2) INFORMATION FOR SEQ ID NO:760

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 6432 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...6432

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:760

cgttccacgg	ctacagtcgt	gtattgttcg	acgaatgtct	gtacgttacg	gctattttctc	60
cggcaatgct	tctggcatat	tctaccttgg	agaaatcatt	ccgactttac	ttttttgcat	120
acttatgata	tgtattcttg	ctttatgtat	ttcgtgttgt	tcaaaaactg	tttgcatctc	180
gtcataagag	cctcgtaacc	ccaaggatct	ctgctatgcg	tattgcttcg	tgtggaacat	240
cgtttcgctc	acttcttcaa	gcgtatagtc	cacacatttg	ctgaggggaat	ttactgtaga	300
ggtaagttca	ctttgtcttc	tctaaaacca	cgcactttca	agcgcgacat	ggaatgtcta	360
tactgccata	atgcgtagtg	acgagagatc	ggtcttatac	ctgctcaata	tagccaatag	420
tccactgaca	atggcttgte	ctctacagga	ttcgttgctc	ttgcaggttc	atcgactaaa	480
acgagtagtt	ctttccctgt	ctggcctcat	cggcaatgga	cgaaagacac	atcattttccc	540
cccgaagag	gaaagccctt	gtctaataatc	ttgtgcatct	ccaagtgaag	catcactttt	600
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ggttggcaga	gagggagggc	tatatctacc	ggctggaaat	tttctccttt	tttccccagg	780
aggcaaggac	atgtggatgt	accagtccca	tatagttcgt	aacactatga	ccaaaccggg	840
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agtcggcacg ga 6432

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(2) INFORMATION FOR SEQ ID NO:761

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1000 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1000

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:761

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agaccgtttg ctttggacag atcgagttct gtcagcagat tggcaaagcg tcgaaagcag 60
tcaggccggg acaattgcta atatctataa aggtagcaca tagtcccctg cagaagaacc 120
tctaaacaag aatttggcca ttttgccatg acgatggcct ttgtttgtct gaactcaaca 180
tcacgaaact cacctgatcg agcctctccc ccgaatcgt acttgccggt tccgttgagg 240
tctgccaaat gtcgttggca tagccatcct cggttctat tttgattgta cactcacatc 300
ggcttcaact agctccatga taatgcgctc gccatcgacg ggtcagggaac tttctgtgct 360
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gccatggagt ggcgcgaac aagtgcgccg aacgctgggtg 1000

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(2) INFORMATION FOR SEQ ID NO:762

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 755 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)
 (iii) HYPOTHETICAL: NO
 (iv) ANTI-SENSE: UNKNOWN
 (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
 (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...755

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:762

gtgaatatct	tcgccgtact	ctttgtagta	gtgggcagct	atctgtctag	gaaagggagc	60
ataagggcat	agcattattc	aaaacatgta	gagccatgga	acatatatac	tgtgcgtatg	120
ataatagaca	taacccaaat	aagcaccaag	acgattcggg	gaaaaaatcc	catcagatcg	180
agatgtgcaa	tgctgaaacg	atggcagtc	gccaaactgc	agcatgccat	ctattgcggg	240
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aaggagcttt	atacctttgg	tgtaataact	acggccaaaa	gacatccggc	ataagagagt	480
aacagcagta	tgctttgcgc	caatcgatct	gatacggttg	taggcccaaa	aaagatgtag	540
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agtgaagtac	agagatcagg	agatagcaat	aatcagtatc	agagcaagat	gactgagtat	720
aggccaatct	ttaaaaganc	ctttttcctt	gctta			755

(2) INFORMATION FOR SEQ ID NO:763

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 2351 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)
 (iii) HYPOTHETICAL: NO
 (iv) ANTI-SENSE: UNKNOWN
 (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
 (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...2351

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:763

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ccaccactg	cacgcgatat	ttcgatgaag	cggccacctt	gtccggatag	gtaatgggag	420
taaagttcat	ctccggtttc	gctcacgctg	cttgggtgtg	tgtttgattc	tgtctaatat	480
gatttgctcg	tgtccatgat	gattacttct	tgatattctt	cttccaccaa	ttattgaaca	540
agtagaggca	aagcgaggca	attcgcgccc	cttgccccat	gcgttcagcc	gttgtacagc	600

aggaaccgag	gcagactggt	ggccatggga	gccatttcag	agccgtattg	aaacgccacg	660
gactatccat	caggtatttc	ataccgccga	catcagcttt	ttctcttgge	tggcacgccc	720
caaatgatcc	aaatctgacg	ccaacgatag	atctgctcac	cgaggctcga	tttcacaggg	780
cacaattcga	acaggagaga	cagagcgagc	aggccgatac	attatcgcta	tacgacgcgg	840
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ccgccgggag	gacgatagac	gggacacgta	tcatacatgc	accgcatctt	atgcagttga	960
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gtgtagctcc	caccttcatg	aggcttgccg	tagtgtgccg	tataggtggt	agagggcttc	1080
ctgtaccgga	acgcgccaga	agtcgggtga	ataccctac	ggcatccagt	cgggtaccaa	1140
tttctccagc	ccgaaagagc	aaatgttcaa	tttctgcaag	ccatacccat	atcggcattg	1200
ccctcattgg	tgcaaagcag	cacttgccctg	tagaggcaac	ggcaaagtgt	ccgcccgtca	1260
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cgcttttgat	atggatagcc	ggcatcacga	tgtggctcgg	tgctcttcca	taagctggag	1440
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cttattctcc	aaaagcgggc	agccgcttcg	ctatgcttcg	tactcataag	tttgctgcta	1860
aatttctact	gcatgaattg	tcttgatcgg	caatttctct	ctgtctatca	cccctgcata	1920
tgcatgaggc	acgagctgtc	cggccctgtg	atgtactccg	acctgtggat	atgtgatcca	1980
gcaccttgct	atgccccata	cagggtggatc	ctccggctcc	tccaccgagt	acataccgcc	2040
gaaaccgcag	cattcgtcat	tcgcttcggc	tcgaatacct	ctatgccctg	caccatctcc	2100
aatagccgcg	caccttggtg	tggtagcgtc	ggtgcacttc	actgggggtg	gacagagcag	2160
ttcgcgacac	ccgtggcaac	tgttggtgcag	gtcacctta	tgggcaatcg	ggaggggagg	2220
ctgggtgatc	tcaggtcatc	gtgcaagaac	tcgctatata	ccgaaccttg	gctgccgant	2280
tgagacatg	tcctgtcggg	ctgggatatg	atcatagttt	tctttcacga	aagcaacgca	2340
actgaccggg	g					2351

(2) INFORMATION FOR SEQ ID NO:764

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 908 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...908

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:764

taatgtcttt	tctccccagc	aggatagaga	ccctcacgga	cgcaccggcc	ctaccagcat	60
accgaaggcc	atcaggaaga	tcaggattgg	gaaggtgaag	ccaagcccga	caaggcatat	120
tcgctcacc	cggtcccgat	gaagatgggt	ctacgatggt	gtatagcgaa	ttgactctg	180
taccaccac	cgcgggagag	catagtgaag	caacagtttg	ggtatctttt	ccgattctaa	240
tgcttgatct	gttgggatga	cataaattac	ctctttatgc	tccggatcgt	tatcatccgg	300
gagtgaaaaa	gccggcgaca	tatactgcag	agcttcccct	ccttacaaaa	tagaccgaaa	360
accctctcgg	actttcgggt	ttgttcgggt	gccttcctct	tggacttgaa	ccaaggaccc	420
tctgattaac	agtcagatgc	ttaaccaact	gagctaagga	agaatagaaa	aacggcttgt	480
gacagcgctt	ctcttgggct	cgaaccaagg	accctctgat	taacagtcag	atgctctaac	540
gactgagcta	agaaagcctt	tcgttttttc	tgatgcaaa	gtagtgcata	tcccaaacat	600
gcaagagggt	ccgcaaaaaa	aatacattca	gatattaaac	cttctcgcca	ccacatccgt	660
tggggcatct	catccatatt	catgacgaga	aagggtgccc	gcctccagac	ggtttaggct	720
cgtgaatttt	ccattcagat	ctccgaaaaa	cgtggcgcca	gaattttttc	gtattggttc	780

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cacagttttt atttcccag ccaaacgaaa atttacgcgc gtgttttcag gattacgaac      840
catgacgtgt actgaaaaag ttgacagttg ggtggatagt tcacaatggt tactaggctc      900
tctataat                                     908

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(2) INFORMATION FOR SEQ ID NO:765

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 967 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...967

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:765

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ttctttgccg atgggcatct gatcggacgc aaggcttcag cttgggcat aagttttttg      60
attgcgaacg tattcccttt gcccgaaaat agtaatttgt gccttgtttg ggtgggactt      120
gttctcattc gccaacccga aataatttga aacaggaata atataatggt ggaaatatcc      180
gccttcggtc aattgacgac ccggcacttt caccatagca taatacaaga aaatgactga      240
tcgagagaca gaattattaa catcagcatc gaggaggaaa tgaagaccgc ctactcgact      300
attcgatgtc ggtgatcgtc tccagagctt tgcttgatgt ccggacggat tcaagccggt      360
tcatcgccgt gtgctgtatg ccatgaacga aacggcaatg tgtacaccat cccactcgca      420
aatgcgccaa tgctgtcggc ggggtgctggg acactatcac ccgcatggcg actcttccgt      480
ttatatggcc tgggtgcgtat ggcacagccg tggagcctgc gctatccgtt ggtggacggc      540
agggcaactt cggttcgggtg gatggcgatt cgcctgctgc catgcggtta ccgagtcgcg      600
cctcagcagg attgccgggtg agatgcttca ggacataata aggaaacggt agacttccag      660
aacaatttcg atgatacacg tcaggaccta cggttctgcc gacacgcatt ccgaacctcc      720
tcataaacgg ggcttcggta ttgctgtcgg tatggctacc aatatgcctc cccacaattt      780
gtccaagcta ttgacggatg tgtggcgtag atcgaagcag atggcgacat agagtggagg      840
gcttgatgca gtatgtcaag gctccggatt tccccacagg agattcatat acggctattc      900
cggagtgaag gaagccttcg agacgggacg agccgtgtcg ttatcagaag tcgtgccgag      960
atcgagc                                     967

```

(2) INFORMATION FOR SEQ ID NO:766

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 658 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...658

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:766

taaaggtgca	tggatgatct	ctatgcaccc	ttcgttttga	tccgatacgt	cgaactcgat	60
tgtcagtcga	gcgatcgagc	cactgacggc	taatgtgctc	gagccaatta	gctcccacgc	120
ctatatcggc	aattagcggc	acacgaattc	gggcatcacg	ccttccacgg	caacgaagat	180
gcatacgaga	agcattcgat	gcgttggaag	aggcaaatag	cttgccaaat	cgaggaaatg	240
aaaagcggtc	gtagagctta	aaatgatgcc	gatatccttc	actacataat	ctggttgcat	300
tatttggtga	atgtgcagag	cgacacgatg	tccgaaatth	gctaaaataa	tgtacctttg	360
ccgcgctgat	tattatcaaa	tagtgccgaa	cgtttgattt	tcagtgcgtt	tttgtccgag	420
aggagcagcc	cagtgtccgt	ggtaaagctc	ctgatgcacc	ggccgaatcg	acagaaaaga	480
tgatcgttca	caaattacta	acaacaaaaa	aacaagcagt	ggatacttta	agcttcaagc	540
catttctgcg	aacaaaagca	actgttacga	aggaatgggt	cattgtagtg	ctgaaggaca	600
gacacttggc	cgtatgtgtg	ccaaggtggc	aaagctctgc	gcggcaaata	caagccca	658

(2) INFORMATION FOR SEQ ID NO:767

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 687 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc feature
 - (B) LOCATION 1...687

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:767

cgtctccggc	gtacatgtct	ccggtgcagt	acctttctct	ccaaggatct	ggaatagtag	60
tgccggcgag	gcagttcggt	ctcttgccac	caaagacgag	aggcgccatg	tcgtgcgtag	120
aggtggtaca	taccgaacaa	tagggctccg	actcatatcg	gcaaagtcct	gtcccggctc	180
tttgatatt	ctttccaaat	gagggatagc	agttgcaact	gttccattac	gacaggcact	240
gcaggggtat	cattcccaga	tcctctacac	agacgagcat	atccgtggag	gaaacagcgg	300
tatcagccgc	gacagtgcct	cttgcttcca	caggtcatcg	ttcgcttggt	gaagtagtcg	360
tccgacagac	gctgccaaag	tttcttttcc	tcaagctcag	atgagcatag	cgaaaagact	420
tttcgaaatg	gatgcgtgga	tgaaggcccc	ggccttgcc	gattctatta	cgaaacatac	480
ttctgtggct	cacgcatcaa	acctctgata	gtgtcctctc	ctccgacaac	ggctgtagg	540
ctaacgctgc	tatatcggtc	tgatagaaat	tcttcgtcgc	cagcgtatat	aatccgaatc	600
gaacggacga	aggtatcgac	agcatacttc	gcttgcaagc	gtccgaaaat	ctgcttgagg	660
tcattctgcat	gaacgaagcg	gaagggg				687

(2) INFORMATION FOR SEQ ID NO:768

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 2996 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2996

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:768

ccaggcgaag	tgcatggcat	ctggcgatg	aaggagacca	aatgatgtcg	gccttttcgtg	60
gcacaggctt	tcgtcgatgg	agatcgggta	gtagtgggtga	gggttttcgta	tatcatccca	120
atgagaagaa	acgcgatctg	atgcggcgat	ggaagcggca	ctatacagca	tgcgccgaa	180
ggccgagaaa	gagttcatcc	gtccattatc	aggaaagctc	gctggactac	actcaaataa	240
atatcgaaac	ggcttaccga	caacacacga	agattcaatg	caatggagaa	taaaagctga	300
aagtggccat	ttcccatggc	gacatcaatg	gtattgggta	tgaattctgc	ttaagacctt	360
tgccgaagcc	tcgatactgg	atctcttcac	gctgtcatat	acggatccgc	caaggtggca	420
gcctattaca	ggaagacctt	gagttggatt	tggaaagttg	gaaccaagta	tcctcggcaa	480
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gccgcaggac	atctttccat	acaaagccat	acggaatacc	tgaggccca	agccggcata	720
gagggcgaag	atgcgtgatg	atcctggcgc	aggataagct	ccgcacagct	ttggtaacga	780
tgacagcccg	atagcacgcg	tgccatcgct	tatcactcgg	gagcaaattc	tggaagctg	840
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tcaggggctg	atccctttca	agactctctg	catggacaga	ggggtcattg	gacggcaggg	1140
ctttccatcg	tacgcacttc	gccggatcat	ggtacagctt	cgacatcgtc	ggcaaggcg	1200
aggcttcgcc	cgattctttc	cgcgcgccat	ctatcaggcg	atcgacattt	atcggttcgcg	1260
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ctatctgaag	gatctcggcg	ttcaggtcct	ttattccctt	acgggacggg	cgtttccctt	1740
accaaaatca	aggagactat	acacatagct	atgccaaagc	gctgaatgaa	gagcgctcagc	1800
acaagcccaa	gtcgtccaaa	acatgtaggga	attatggcgg	tcggatacgc	gttgattacg	1860
ggggaaccaa	ggggatcggg	ctcgcagtag	cccgctctct	ggcaagcaga	gatactccct	1920
cgttcttacc	tacggacatg	atcaggagac	ggcgcgagca	tgccggccga	attggcagag	1980
agcgctccat	ccgtagagct	gctgcaagcg	atgctaccga	tgcgaaaggt	atcgacctga	2040
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cacatgcgca	cgccttttcga	ggagatgact	atcgacgaat	ggcagcgcg	attctttgcc	2160
atgtccattt	ccccaccttc	ctgatccaac	gccttctgcc	gcgtacgagc	gcaacaacgg	2220
atgtatcatc	tttaccggat	cgctcatggg	aataaacccg	acggcatggc	tctgccttat	2280
ggagtgaagc	aatccgctgt	acagctctga	cccgcaatct	ggtgaagcat	ctggagcctt	2340
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acggccgaaa	tacgccgaaa	tatcgagaat	aaggttgctt	tgcatcgctt	gcgacaccgg	2460
atgaagttagc	cgaagctttt	ttattttttgc	tcgccaacgt	tattgcaatg	gtgaggtctt	2520
gactcttgat	ggaggctaca	gcttcgcgca	acagctcaga	catgaacgaa	aacgacaagg	2580
agtaccaagc	ctctctcaat	cactggagac	ggaaaatata	attgaccgga	aattctaccg	2640
tccgatgggt	tttactttgc	caagctttct	agtcgtacaa	gggtaacgcc	caataggtta	2700
cgatcctgtc	catctttgtc	ggattagggc	gcgggctgtg	cttctgcata	ctccttatga	2760
tctccgttgg	gctgtggccg	gtattctatg	tatgtagtgg	ctaataatcat	ggactgcctc	2820
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gtatcccgat	gccttaagtt	cgatgaccac	cggatttcct	gaattgccgc	ggtctt	2996

(2) INFORMATION FOR SEQ ID NO:769

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 338 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...338

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:769

cccaacaaga	actcggtaaa	aattatcggg	gacaatacga	ataaatactt	caggcttact	60
tcgcttacga	ctcgaagtaa	atcgggtgga	ttcacctgtc	gcaccttcgt	ttcggcgata	120
cgccatacgc	ttctacctac	cttgtgggac	accggacttc	gtggcttgcc	acgtgcctgc	180
ctacttgctg	atgtacacgt	gctgaaagg	ctgaagaaaa	aaggaacttt	cctgctcaat	240
tcgattgggc	tccggaagat	atagaacagc	atctgcccaa	caaggtaaag	cgtttttggc	300
taagaacaac	atccgattct	acacgattaa	cgctactg			338

(2) INFORMATION FOR SEQ ID NO:770

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 877 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...877

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:770

gccgaaagga	agacctatcg	gcagcggcat	atcggcgata	accagattgc	cggacctgtg	60
acgatgtctt	tctccggatg	cacctttgcc	ttggaaagtt	gatatagaag	tgaggatgat	120
cgatgattgtc	gcaggtcgta	taacgcctcc	ttgcataaac	atgatattgt	cgggcatctt	180
cttgggtctta	ccggcatcag	atagccttcg	cccttgctgc	gtgatcactc	cgctgataat	240
cccctctccg	tgcggaagtt	gtaggtaaag	ttcttggtct	cgaacgactg	ctctcactct	300
tgaaaacagg	aaaggccatc	ggataaccgg	ccgtatcgag	gactagcgag	tataaaccgt	360
actgctgtcg	gtattgagat	acatgaagtt	tgctccaagc	gactcttttg	atagctcaca	420
tagctcttgc	cgaaaagata	gcacgattct	gtccgagcaa	aacgatggaa	tcggcagctt	480
cgtactccac	atatcttcca	attcgaattc	atcgtcatac	acgctatctt	gccgcatcgt	540
ccggtggaat	cggcaggaag	ggaatctcga	aaagcactgt	caggaatagt	tttgcgagag	600
gcaccgtgtc	tttcgctgta	gaatcagaca	gcgcagctgc	cgacgggtgg	gcaatccgac	660
tgctccggcc	ataggacgtt	ccgcaggacc	aaagtagcac	agagcaatcc	gacaaggatt	720
acgggtaata	accataaagt	ctggaacaga	gatcggatac	tctcattcgg	attcattcat	780
actccagggtg	agcaaaggta	aaaaagaagt	tgtaatacac	gatgaggttg	tacggctgcc	840
ccggggccga	cgcattaaat	tggtttgcgg	cttcatt			877

(2) INFORMATION FOR SEQ ID NO:771

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 803 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...803

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:771

tcccagtggc	aaatcgtcgt	ggtttgccat	cttcgtcttg	gcgtgctcgt	tgagtgtacc	60
gaagaaaaga	ttctgcagta	tggcattgta	ataattccct	cggtgggtgct	attgggatcg	120
aaatccttga	ggatgggtctt	gaggaagcaa	tatcgaaaag	atgctgagga	accagctcct	180
tttgcttgat	gaaccaacaa	acataatacg	cgtaattagg	cggattatct	tcgtttctag	240
atctttctat	catcttcact	tgtactagta	tcattaggga	aactgatatc	ggcccgggag	300
atatggccca	ctggtaccac	tcgaagagat	ccttgtagaa	ctgttcgtca	gtgcctcgac	360
ggagaaaagca	tcctcaatat	ctttgagttc	gagtcttggt	gttggttctt	gtcgattaac	420
ttctggaagt	tgtctgctgc	ttacgacagt	gctgccaggg	gccgagcaag	aaggtgaaac	480
gcttgctgct	gtaatgtcgg	actggctcct	ccccttggtg	cagaaggtaa	accgccattc	540
cacaaaggat	tgtcctcgta	gtggaatatc	ataaaagcac	tcgaatagtg	tcatgatacg	600
cctgataata	ttctggatgc	caaccttatt	gcgagcctct	tgatctggct	agataccgtg	660
atgtcaaaga	tgttgatagg	attgaatcca	tatcgatatt	gccgatatgc	tgatctctag	720
gatgcccggt	gcttggtcgc	tggtcgtagg	tcgggtacat	ctctaggata	gatcaccatg	780
accacctcaa	atagctctga	cca				803

(2) INFORMATION FOR SEQ ID NO:772

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 540 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...540

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:772

tctttggttt	ttcattttca	tcaaaattat	tttttggtgc	atttgcataa	tttcttttga	60
ttcatgcgct	gcaaaggtag	cagcaataag	aagaaaagga	ataaattcag	tataaacgaa	120
ttgaagccga	acaggaggaa	tagacaaggc	cgaatcttcg	gatttctttg	ctttcccgat	180
attggaagta	tccgtacttc	gtgctcggct	gtggccgaca	ggcccatgca	gcgaattaag	240
aaacgttgta	ggctgtttct	tgtccctgac	acgatgctgg	aagccgttgt	cacggacaat	300
cactccgtgc	atgatgcagg	aagccgttgt	cacgtgacaa	tcattccgtgc	acgatgcagg	360
aagccgtcgt	cacgtgacaa	tcacgtcctg	cagatgcagg	aaacgattgt	cagccgacaa	420
tcgtttcgcg	cacggctggt	tgacctttcg	tcgcctgaca	atgcttatat	aaaagctggt	480
tcagggggca	tgtcacttga	cactgctacc	aataacagat	taataatcaa	tcaaatacac	540

(2) INFORMATION FOR SEQ ID NO:773

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 777 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...777
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:773

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ggaaagacta ctttcacgct cggattgcta cgattgcttc gaaggcgcgt ctcaaagtgc      60
agcctttcaa atgcgggtccc gactatatcg atcctaagat caccgccttg catgcggaac      120
ggaaacggtg aatctgggatg ctttcatatg agtcgggagc atatcgcccg actctatgat      180
cgctacggca gtgaagcgat gtttctattg tggaggagat gatgggcttc ttcgacgggt      240
acgacgtatg acgggtagca gtgccctttt ggccgaaaaat ctgcgcattc ccgttttgctt      300
ctgatccatg caggcagcac ggcctattcc gtggctccga tacgtatggc ttcaaact      360
tccgcccggg tgtggctccg gtgggtgtcg tttcaataag gttggctccg cttcgcat      420
tcgctatctg gaggaagcag cgcggatgcc ggtgtggcca gcctcggtta cttgccgaag      480
atgaaagatt ggaaataccg tcgcggcatt tgggcttgtc tgtggaggat ttagtccgta      540
tgattatttg ccggacaggg tggcagatgc catcgagaag tatgtggagt ggagagattg      600
cttgggtctga tggcctccga tgtcgatccg gttatcgaga agagagcttt acggagtctt      660
ctttgcacgg gaggaaatgc attgcgtggc ggatgacgaa gcatttaact tcacctatcg      720
ggagaatatt cgtcgctcga aagccgggaa gggtttgttc gattcagtc tttgcgg      777

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(2) INFORMATION FOR SEQ ID NO:774

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 893 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...893
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:774

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gcgcagtagc cgaagcatcc gattcttctg cctgcaacaa tatatacttg ccacgccatc      60
gaagctgaga gcatacctcg actgcccacaa agcttttgtt ttatggtcag tagttcgtct      120
gtaccatata ggatatcctc gatcaactct tccgggcaaa tcgcgcaaa gcgttttgat      180
cgtcacatcg tacttccgca caatgcctct atttgccaaa agaaaagatt gtttttgtat      240
ttgccaatgg ctcaatgcc cttcgtata tactcttctc acgagatgga atgacttgct      300
catatccggc agattcactt cgcccaagcc cttacagcgc ggaaatagcc atgaggggaa      360
ttgaaactga aattgtgcgg agccgatcgt cttacgaaat tcccgtatca ggacacatca      420

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tcatccgact	aaaatgtccc	attcgttttt	tccgaatcc	aacaccatca	caagcccttc	480
gccttcacgc	tagccagtgc	caagctctcc	gctatacggt	tgctttgatt	cgatgctacc	540
acagcttgtc	gatctgcact	tcgacgtcat	gcattttata	gcgatcaact	tcatcccatg	600
caaaatctcg	cgaatctcac	cattcacgcg	tacgtgcgat	agcctttctt	acgaagcctt	660
tcgaatagct	ccttataatg	ccccttcgcg	agcgaaccac	cgggggctaac	aaagctatct	720
tacggccatc	atactttcca	aaatgagggtg	gaagatttgc	tcctcggtgt	atttcaccat	780
cttcttcctc	cggmataaga	ataagcctna	gcaacacgag	catagagcaa	acgaagaagt	840
cgtacacctc	tgtaacggta	ccgacagtcg	atctcggtt	ccattgggtg	tct	893

(2) INFORMATION FOR SEQ ID NO:775

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 341 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...341
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:775

gatagtgcag	acaagggtgac	ggtggagctc	gtggacaagg	cgaagggtcac	tatatgcctc	60
gtatgaaggt	caaaactgct	ctgaaggggcg	tccgtatgag	cgtgccgagc	gtgtccttga	120
tgtgccttac	gcctcttcgg	tcaagccaat	agaacaacag	cggtggtatct	tcatcctcgg	180
acaacaacga	acacacgggc	tgtaaacaaa	gcattttaata	gtgacaacga	taaatatctg	240
aacgtcttat	tcgacaatac	atccctaaag	attcttcggt	catcgatata	acgacaaaaca	300
gatctccatt	atgagacctt	tgaaaaataa	taagtggagg	a		341

(2) INFORMATION FOR SEQ ID NO:776

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1192 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1192
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:776

ttgcacaata	agcaggcact	ttatccattt	atccattcat	tttattgtgg	tcggccgatt	60
gttttgtgtg	tttatggtat	gatcaatgac	acaaaacgtg	gcacgacaag	gaaaatcatc	120
cgacgaagag	gtttcgttca	gggacgtatg	tcagcgaatc	gatacaggaa	agcacggaat	180
gtattttcga	accaagcgat	atgcttatcg	attggcaacg	tattcgggca	ctgctctcta	240

ttcactggca	gccatacacc	tactcattga	tcttttccttg	agatacaaaag	aatgactttcc	300
acgagaggat	actatgatct	cacatgagag	gatactatgg	tctatatgag	aggatactat	360
ggtctcaaat	gagaggatac	tatggtctcc	tagagaggat	actatagtct	cacatgagag	420
gatactatgg	tctcatatga	gggatactat	ggtctcacat	gagaggatac	tatggtctca	480
tatgagagga	actatggtct	cacatgagag	gatactatgg	tctcatatga	gaggatactt	540
ggtctattga	tggaagatgc	tatctgctct	ctgccggatg	gcagggttcgg	gagttggagg	600
tccgtgcgag	ctgtaaaccg	atagatgaga	ctgtcgccgg	cattttccgg	agatttcatt	660
gtcaattgac	tgattttcag	tgtctgacag	atataagaga	cctttgcacg	ccaattgccg	720
tgcaaaggtc	ttcttaattt	atgcagaacg	cgggggataa	ttatgtcctc	atccgtagga	780
taagcataac	cacccttgag	gagctcgtgc	aagtagctcc	gcaaggggga	tttcaactac	840
tttcaactcc	tactgccacc	ttttccctcc	acctccttat	tttcaaaggt	ctctatagac	900
cgataatcag	agtctcgcca	caaagagact	gaaagacaaa	agcctatcca	tgtatgccct	960
atcggcaaa	catgaacagg	ttttttgtgg	tcaatcctcg	gccaccgtta	tatgagattt	1020
atattcacac	ttttatctac	cgcgcaaaaa	gataatattt	tgccggtgaa	ataactcttc	1080
cccttcttta	tccttttcag	ctatgcgttg	gttcatactt	tgtctcccaa	atatgtagac	1140
ttcaagggcc	gtgcccgctg	caaagagttc	tggctctcac	cctgttttat	ct	1192

(2) INFORMATION FOR SEQ ID NO:777

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 3098 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc feature
 - (B) LOCATION 1...3098
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:777

cgacaggtag	gcatctgtc	gcaaagcatc	ggattggggg	cgggatataa	cttgagtagg	60
ttcgatagaa	aacgaattga	tgctgtccca	ctcagcgaaa	agattcgtcc	gacatcgggg	120
taaggggata	gtcctcttca	tccggttggg	ttgataagag	agcatggcac	gagctatctc	180
gcgagcctga	taagtttgcg	cacgagaata	gcaatatccg	aaggagcata	ccctcttttt	240
tgcaagccgat	gataaaacgg	ggaagatcct	gcaagatctg	ctcctccac	gaaaattggc	300
ttccgcttct	tctgatgatg	ccggcgacgg	aagataaatg	cagcgcttcc	atgccggtct	360
acttttagccg	gtggcacaa	ctgctccaca	tcgcataggt	ctgcatgaat	gtacggttga	420
tctcctccgg	caacttagga	tgggcattgc	catcgctctg	gcttcgag	tcatagcctc	480
acagaggatt	gtggcagatg	cttgtagagg	gagttgttga	actcgattat	ttcgggagtc	540
ttcgccaatt	atatggtaga	ttgacctct	ccgatgtttc	ggcaaaatcc	gactgacgac	600
ctctgtgagc	agacgcgggt	cggcattgcg	gaagcggata	tactctgttt	ggcatcgccg	660
acgaggagggt	tgtacttgcc	gtgagcagac	tctcggacag	caggggcttg	aagttttcgt	720
actgtaagcg	gctggatctt	gaaattcatc	gatcatttcc	tgttcgatgc	gtaccccgat	780
tttgcataga	cgaaaggggt	ctcgctcccg	tcgatgatcc	tgtgcaatag	agaggagcat	840
cggaaatgag	cattttgttc	tcttcttgtc	tgattccttc	gattgtcgcc	aaaggtcgga	900
gatgatacca	agccggttca	gaaaggggaa	cactgtttgg	ccgtggaata	ctcttgccat	960
tccctgccga	gcagagtggt	gccatttccg	tcagacactc	tttgagaccg	gattggtaag	1020
ccgagaggag	gctgcctggg	tgggtggcagg	agtggttttg	gcgtagagtg	tggctctccga	1080
tcgccttctg	ccatcgccat	aaaggtcttt	gtgggaggct	tgacttccct	cctttgagca	1140
ccttggcaaa	ctctaagata	cctccttttg	tacccttttg	aaatcgtaga	agctgattcc	1200
ggctgtggcg	acgatttctt	ccgccgacgt	gcaatagaca	gacgtcgctg	ttcgaagcct	1260
tccatcagct	tgttatttctg	gtttgatagc	gatgaatggc	agcttttggtc	ggtagtttgc	1320
cttctcggtat	agcaggagta	gctgttcttt	gaaaagctca	tcacccaagc	tgctatctcc	1380
ctgcggtagt	tatgtccacg	ccccctcttcg	atcagggtctt	cgccaaacgc	ctgatccaat	1440
tctcgacgtc	ggaggtatct	ttttctccca	gctgtgcagc	aagacggacg	acagcctgtt	1500
cgagcacggc	cttctgctca	tctcgatccg	aaaaccaccc	ggcagtccca	attcatgaga	1560
gaaggcacca	ttacttcctg	aaagaaggag	tcaatggtct	tgactcgcaa	agaagaaagt	1620

cgtttagtat	ttcggtcagg	acttcctgtg	ctctgacttg	tagctgtcgg	tagtcagagc	1680
caactcctgc	atcagctcct	cggcgaaagg	ggacgtccgc	ccacagccag	actgtacagc	1740
tcttcgagaa	tacgctcctt	cattcggcag	tggctttgtt	cgtgaacgtg	acagcctgta	1800
tataacggaa	agcccgcgcg	tacgcagggc	taaacgaaga	tattcgccgg	taagtgtatg	1860
agcttgccgg	aaccgcgcca	agctgtataa	atgcggagtt	gcttggagcg	ttcatttggt	1920
tttcttgtgt	ccgggggcaa	gacgataagt	ccggtcatag	ggaagagagc	cagctcgcgc	1980
ggattcttct	cgaagcgagc	gatagtctcg	gcgggatcgg	atcgccgata	tagacatcga	2040
aaatatgccc	tcgcttatga	atagctcggc	agggatgcgc	ggagtccgaa	tagcccagct	2100
cagccatcga	ggaagtgaaa	ataccaggaa	ttgcggccac	tgaagaaaaat	cggataacgg	2160
gcacctgact	gacgagtatc	atcttggcac	aactggcttg	ccattgctgt	ccatcacccg	2220
attgcgattg	cctttataga	cggatattcc	tccgcgggga	agaagccgac	cggctgaccg	2280
ttttgaagac	ggttcagtag	ctcttcactc	cggatacatt	gtgcttgctg	tcaagtcctc	2340
cggccattcc	ttgagtggag	ccaccggtat	gaagctgtcg	cgcaggcagc	tgatcatgga	2400
cgaaaaccat	tgaccaatac	gctataatcg	ggacgtaccg	atccgataat	tcgatcaaca	2460
taatgccatc	cagagagccg	aacgggtgat	tggataccgt	gtaaaggcac	cgcccttgcg	2520
catctcttcc	aaatgctctg	ccccgtgcgc	cggtagcaga	cattgatggc	ggggtcagtc	2580
agtgcagcat	gggcaaactc	gctccacgca	gattgatatg	acgggcatgg	acggcggtta	2640
tgtccgtatc	ttgagggctt	tcagcaaccg	gcgcgtcagt	cgtcgctccc	ctcccgtacg	2700
ggaaaaagac	gaagtacatc	ttcttcggta	agaacttcgg	gacggagtct	gacatgagcg	2760
atcgggtatt	aaggatcttc	gagttgcctg	agctatgatt	accgcctctc	tttcagggtga	2820
tgtctgcaca	tggcctcggt	tctctgatac	cgaggacgag	cactgtattc	agaatcagta	2880
tttcgaacac	gaatagagcc	aaatatgacc	gctcaagacg	ataagaaaaa	gaggaatggt	2940
cggccggttg	acgtaaggaa	gtccacgata	ttcatgattc	ggcggctatc	ttacgcagat	3000
gctgccgaag	cgtttcgggg	atgggtattt	gcggataacg	gcctccaatt	ggtcgagaag	3060
cctttgcagc	cgggggtgtc	cacgttctgt	atcaacgt			3098

(2) INFORMATION FOR SEQ ID NO:778

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 681 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...681

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:778

tatggtgcag	gccggcggtg	tggaagagaa	gaaaaaccgg	atcatggaat	aatggtgtcc	60
tccacacggc	cgttcaacct	gatgatgggc	aaaatcatgg	tatcggtctc	gtaggcctta	120
cgcagctcat	ctgntgggga	gtgctcaggn	actgctgctg	acggtagcac	agatcgctt	180
cctcggcaat	ctgtacgccc	agaggccctg	agtcggatgc	aggcttccga	cataacgggc	240
atggctcgtc	catgaatgca	gaggacttcg	ccgagatgaa	ggaagtgatg	aacacatcgg	300
gggcatcaac	ttcggagagc	tgttcgtgat	gtttctcatc	ttctcatcgg	cggctacctg	360
ctctactcct	caatcttcgc	cgttatccga	tcattggtatc	gaacgacgaa	gacaccagcc	420
agttcatgat	gcctgtgatg	acctcctgat	gttcggcttc	tatgccgcct	acggcagcat	480
gaacaatccc	aaggatcgct	cgcattctgg	tgttcgtgta	tccttttcac	ttcccccttg	540
tgatgatggt	gcggttgccc	tacgacgttc	cgctgtggca	ggagttgcaa	gcacggcct	600
gctgtacgga	tgcttcgtat	tgaagaggtg	gatcgggcga	agatttaccg	cgtaggcgtg	660
ctcatgtacg	gaagaaagcc	a				681

(2) INFORMATION FOR SEQ ID NO:779

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 669 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
 (iii) HYPOTHETICAL: NO
 (iv) ANTI-SENSE: UNKNOWN
 (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
 (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...669

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:779

tcgttcctgt	cttaccgat	ttcaatgcag	ccgatgcagc	aagtatagta	cgcattccga	60
tgccaagtat	ctcttcgat	cggacaaaat	atgggagaga	tggatccgtc	tcagctcctt	120
ctcctgtgcy	gagccgtctc	tatccgtatt	atacggctct	cctggatcgt	acggaggggtg	180
gcttgctcag	ccaggagtag	aaggattgag	tcgctctttc	tccgaacact	acccttcagg	240
cttcaggcag	aggatattcg	ctatgccgag	gtgtcgaacg	acgatctcat	cctgtgaact	300
atacctccgg	tacgaccgga	ttcagtaagg	gggttatgct	tcggccaaca	atctggccgg	360
caatgtaacc	tacgttaagg	atagagacat	tagttccgag	gcgagacgat	cctttgcttc	420
cttcattg	cccatactta	tgctgtgcgt	tcaacttcct	tacgccattg	actatagggtg	480
tgcattgtga	atcttgggca	aaatccccct	tcctctcact	ctgatcaaag	cctttgcagt	540
gtacgcccct	cattttgtcat	catggtgcct	ctcatcatag	agaaattgat	cacaaggcaa	600
tagctccgaa	aatcaagaca	ccgttaatca	aattcctcta	agacttctctg	tgctgaaaaa	660
ggtgataca						669

(2) INFORMATION FOR SEQ ID NO:780

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 652 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
 (ii) MOLECULE TYPE: DNA (genomic)
 (iii) HYPOTHETICAL: NO
 (iv) ANTI-SENSE: UNKNOWN
 (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
 (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...652

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:780

gaaaaatgct	gtaaactgaa	ataaacttac	catatcgttt	ttttataagc	agaatgcctt	60
ctgccgga	ataacgcgg	ttccctattt	tgaaagacgt	aatttcccgt	ttcttcccca	120
cctcaaagct	gttttgaaat	gtattcgaaa	atcctcgcta	catcaaaagc	atcgtaatag	180
atttgttcct	ccttttcaaa	tttttctctg	gcattcatagt	ttcagggttg	aaagattatt	240
cgtttttggt	caataattcc	attgtttccg	atataactga	tataactctt	ggcctacggg	300
ctttgacgtc	gaccgtttgc	atgattcttt	cgaccagttc	gtttaagata	aatgctcttg	360
ggcgtgaaag	acttcttttg	cgatttgcct	cattccgtaa	gtttccgttt	ttctttgtct	420
tccggagatt	tctctccccg	gaaacgtgca	tttcttttct	cctgtcccat	ccgaacagca	480
tcaaagggtac	tccaacgggc	ttccatccct	tactttaagt	gcttttacga	ccgacaaagc	540
ggattctcat	ctttctctat	ggagaggatg	gccgccgact	tgcgctgagt	tccgaaccga	600
tatgccacg	cagtttaate	cgttcggaca	aaatggatac	acagataata	ca	652

(2) INFORMATION FOR SEQ ID NO:781

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 972 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...972

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:781

tgatggaaaa	gtaagatttt	tcatagttaa	ggttttggtt	aatttgggag	gagtgagtcg	60
tgagactcgc	tccttttatg	ttctgatact	cttgtctacg	tctcttgtct	gaatttatcg	120
ttatttttcc	ctctatatga	aagagttcag	tactttcgcg	ggcaacaaag	ttaatcgatt	180
tcaacaacaa	ccaattagca	ataataatac	gtactatggc	tctaagattt	atcactgcag	240
aagaacagcg	gagtttgtgc	atcacaaacg	caatgtcggc	tttagcgggt	ttaccctgca	300
ggcaacccta	aggtagtacc	tgcggaata	gccaaagcag	ctatgcagcg	catgaaaaag	360
gcaatccctt	caagatcggg	atgttcaccg	gtccagtacc	gggtgctcgg	tggacggtgt	420
cttggcacag	gccgatgctg	taagtttcgt	actccatata	agtccaataa	ggatctgcgc	480
aatcttatca	caatggcagc	acttcctatt	tcatcttcca	tctctctact	ttggctcaga	540
tctgcgctat	ggcttttacg	gcaaggtgga	tgtggccatc	atagaggtgc	agacgttacc	600
gaagacggta	agatcctgcc	tactacaggt	gtaggtacct	gcctactatt	tgccgtctgg	660
cagaccgaat	catcgtggag	cttaacacaa	gcaccccaaa	gaaatcatgg	gtatgcacga	720
cttgtgcgaa	cctctgatcc	gcctgcccg	cgcgagctgc	ctgtctatac	tccttcggat	780
cgtacggcaa	gccttatgta	caggtggatc	cggccaagat	agtcggtgta	gtgggtacgag	840
cgaacctaat	gacgagagcg	attttgccgc	ccttgaccct	gtacgcaggc	tattggggac	900
aatgtggctg	ctttcctcgt	gagcgaaatg	aagccgggac	aatacccaaa	gattttcttc	960
ccctgcaaag	cg					972

(2) INFORMATION FOR SEQ ID NO:782

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 5243 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...5243

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:782

ggggaatctg	tgcgaatagt	gcctgatttt	cggccagact	gttttcgaat	attgttcttt	60
gaagagaaa	actcctacag	gattggcgat	atttttctca	cggcctcttt	ctgcgcgatg	120

gtgtattccc	gttccatctg	atccatttct	cctctgctag	ctcttccgtg	aggggtggaat	180
cgctgtaaat	ttcattatct	tgttcataat	ttcgccatt	ttgctgcgta	tctcttgata	240
gatgtgttcg	tgggggtacc	ggtgacggat	tcggttccgc	tcttcatctt	tacccgatgt	300
gtccgttctc	aagaaagaac	ggaatgctga	atacatcggt	agcgtcatac	aggagaggta	360
gcgagcgacg	gtcgaatcct	gtctgccttt	gagctgaatg	tgccgttgcg	gatgatggcc	420
gaatcaagac	gggtgacttc	ctgttttcga	tagattcgag	gaatacggta	tcgccatcgg	480
cggcatactc	acggtgccaa	cgatcttgta	tccggatttt	cctttgtcag	agcatgaggg	540
gacagcaggg	tgatagccgt	ggccgctatt	gctatataag	tcagcttctt	gaagctgcga	600
gaagatttat	tcgtttcatt	ggttggtatt	gtttttgatt	tcacactggg	ggcaaagtta	660
ttgttttggg	ctaaagtgcg	gtatgcaccg	aaagagccgc	tgccgatccg	agtatctgat	720
tctctcttct	cctgctgatt	cgggaaagt	atgcacaaac	caattccggg	gtcagcacct	780
ttgcgacgat	tcgtggcgaa	aaaatgcctg	cggtagcata	ctgtctgcat	cagctgcgcg	840
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gaagaaagtg	gcgaagaaaa	caacgaaagc	actgtcatgg	ctctccgcat	ggcttttgat	960
gcagtggccc	ccacgaatac	ccatcccaca	ggaaagcggc	aaaggagacg	atcgggtacca	1020
ctcctgcccc	aaagcaaaac	ggcgagcatg	ctctatcact	tcgtatttgt	cactcagccc	1080
gaaagcaaa	cggccgggaa	cagcagatag	agcaaggtgg	ccatgaggag	acgaccgtcc	1140
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tcgtcccgtg	agtgtctcgc	cggcgaggcg	aatccgtcca	taaagtagga	gaagagggtg	1260
aagagtgtca	tcagagagca	tttgctgcc	cagtgatctc	tcccatagca	gaggacgcag	1320
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cgaagcgttc	tgtagagga	gctgtatgag	aagaagcagg	gctgcgacaa	ctgccatcgc	1800
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gtaatcccg	agtcgccata	cggagggaag	cgaagaccca	aaagacgaaa	tgaccacccc	1920
cgaagccaca	gccactgccc	cgatagagtc	ggccgtgtcc	tacgaccggc	cagccctaca	1980
tccacgatgg	agaggagcgg	tacggtaatt	tggagatgat	attcgggaata	gccaaagcgca	2040
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ctcgaagccg	gatgtctctc	catagtagcg	atcggggaca	tggctctgaat	accgctactg	2220
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gccgtctctg	attggcaaa	tcctgcccgt	gatataatcg	aatcgttcga	aatcctcata	2340
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cggcatcggc	cttttcccc	tgatggtaat	tgctcagtc	ggccgaatcg	tgtggaagcg	2460
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tcttgcaaac	ccagcttgcg	agccaatgct	tccgtgttgc	ggggcggtcg	cccgtcagca	3060
taatgggtgc	aatgccatgt	cgatggactg	tgcgagcacc	tctgtctgct	gaggttgacg	3120
ttcgtcggtc	acacagaacg	tcccaataat	ctttcggcac	gtgagaaata	gaggatggct	3180
gcattctccga	cagagcgggt	atatccgtcg	gtatctgtgc	gccaaagctcc	tcgaaaaggt	3240
ctggttgccc	actctgtaga	tctctctctc	gaaggaaaat	tcgtccacag	accggggaaa	3300
ttctggactt	ccgacagctc	ctccgtcctg	cctcttcggc	aaaggctcgg	caaatggcag	3360
ctgcaagtgg	atgcgtgcta	aaatctcggc	ggagttagagc	agccggcgta	ctttcggtag	3420
atcggtatcc	atacaaacca	atcgataccg	gtcacttccg	gcttgccctat	ggtagagctc	3480
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ccgaagcatt	ggctgtcccc	tcagttgcca	tataatatag	gtaaggatgg	atagcccgat	3720
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gctgtagtcg	catcagttca	cgaatggctt	gccccggctt	cggccggcac	gcttttccat	4140
gagtttgccc	agtaggacaa	atgcgtgatc	atggccgaag	catcgaagta	gaggtggagc	4200

ttcatcccg	cggccttcg	cggaaaaaca	gcaggactat	caggctataa	aaaaaggaga	4260
tagggtgctc	aacgatacca	gcgtatccat	tgaaaatacg	ccgtggcgca	gtgcttgagt	4320
gccgatcgg	ggaaagtcct	tcctgccccat	gtgtatccgg	gaaggctatg	agcatcatca	4380
ggtagggcat	catctggaaa	tgcggcatta	catcagaagc	atcagcagga	tggcggacga	4440
ccaagctatg	atcgtatcga	cttcatccgt	ctcagttctg	ctgcttccat	ggcatcgcg	4500
cggcgaagt	ctctgcctcc	gaatcctcca	ctatcaggtc	gaatcctatg	ctgcggaagc	4560
tttgcgaga	tcctctgccg	aagttaacct	ttcgccacc	gatacaagag	tatatctctg	4620
gcgagttgga	cgttcgcatc	gctaatacct	tctacttgga	ggcagcctgc	tctacgctat	4680
gcgcacagcc	ggcacaccgc	attccactac	gggaaaaacg	tttttgctcc	ttcatatcac	4740
ggggactatc	gggtataagg	attgggcttg	tcagagctta	cactcgaatc	cggcgaggcg	4800
taagccttca	ttattgcctc	cggtgagggt	gtctccggag	cataatccac	ttaaactat	4860
gggaatccag	agaagcgaat	gccgtttgta	cgccttgta	ccgagagctg	ctttctctac	4920
acttgacga	caaccgccac	acatcatgct	tctacggaaa	aggtcggtgt	tttcatcttg	4980
acgagtagtt	ttttcttaga	tcctttgttt	ttgactttgg	cttgtagata	gctgatctac	5040
ggcaagcctc	gttcggacta	ctgtaaggta	tgcataccgg	actcctgcat	cgtcccgcact	5100
gtagtctctc	tctattatat	ataaacgaaa	caaatcag	agtcgatgg	tcgccggact	5160
gcggatagtg	gtcgagatga	aaatgcgaag	tggccggaaa	aaacttggtt	catgtccctg	5220
aaaatgccga	gcgtaaaatt	ttt				5243

(2) INFORMATION FOR SEQ ID NO:783

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 616 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...616

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:783

ggacaacatc	gtcaatacga	tcaatagtct	gcgcgatacg	attgctattc	gttcgtcatc	60
gttattcttg	tggttctggt	tttcctcgga	cgatggcggc	cacatttatc	atcggtctga	120
cgatccctat	ttcactgggt	gcctccttat	ctacctgatg	gctacaggca	atacgttgaa	180
tatcatttct	ctcagccctt	ctctatcgct	atcggtatgg	tagtgggacg	atgccattgt	240
agtgccgaaa	acgtaacgac	acatattgaa	cggggcagct	atcccaagca	ggctccatac	300
acggcacgaa	cgaagtgggg	atctccgtta	tagcttccac	gctacgatgc	tggtgtgatt	360
cctcccattg	acgatgattc	aggggcttac	ggatcccttt	tcggtcagtt	gggttgatc	420
gtgagtatta	tcattgattat	cctacggtag	ctgctctcag	cctgacgccg	atgctctggt	480
cgcagttgct	cagcgcgaca	naaagcaagg	acggctgcaa	caaaagctct	ttgtcccgc	540
gaacgctttc	ttgattctgt	agaatcgagc	atatgagccg	tttcctgatt	gggactgtga	600
gacacagaac	cggtta					616

(2) INFORMATION FOR SEQ ID NO:784

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 657 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...657

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:784

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gggcaaaaac tctcgaaca actgatcttc acctttggga gtagggccga aataatcaaa      60
ggagttcggg cgtcatcgat caatacggaa tccacctctc gactatggcg tagttgtgct      120
tacgctgcac caagtcctta ggactcgggc catattgtcg cgcaagtagt cgaagccgaa      180
ttcgttattg gtgccaatgt aatatctgca ttataggcct tgcggcgggc atccgaattg      240
ggctgtgctt atctatgcaa tccacgggta aaccatggaa catatacagt ggcccatcca      300
ttccgagtca cgtttagaaa ggtagtcatt gaccgtcact acagcacgcc gttaccagtc      360
agagcattga ggaatacggg tagggtagct acaatgtctt tccctcaccg gtagccattt      420
cggcaatttt tcttttgtgt agactgtacc accgatgagc tgaacatcat agtgaatcat      480
gtcccacaag ttctattgcc tcttgccacc cagtggtttt ggtagacggc ggtatctcct      540
cgatcgagac gaaatcatgg ttgattgcga gatcacgac aagatcaggg ctttgactcg      600
aatagttcgt ttgggcgaat ctgcgacagt atctttgtaa tagcaaagct tcgggag      657

```

(2) INFORMATION FOR SEQ ID NO:785

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1089 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1089

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:785

```

ggacactaat ggtgaaaata gcgaattgtc ggtttgctgt tgttataaaa acaatatctt      60
tgttcccatc gtagtggtcc ctgctcgtct cgaacaagtg agtgggggtg aagaggggaat      120
cgggtgagaa tcccagagcag tcccgcctctg taagctttta ccgccgtgtc ggttttgaca      180
tgcggactct tgctgcttcc aaatgatgcc actgttcatt ctccactatt agagggtggag      240
ctgaaggga ggcgcgacaa acagaaaaga gatgaagtaa gccagaatac ctgctctacg      300
agttgcctat aaagtatgga gagaagacct cgaggaaaagg agttccccgg cactaagaga      360
atagatctca ggaagtattt ttttacaata actattacaa tgggaagagg aatccttcgc      420
atcgtaaagc gtgatgggtca ttgcagtcgt tcgatccgga aaaaatccgt caggcgataa      480
tcaaggctta cgcgcaggag gtgtgcacga agaagctgca cgtatcgaca atattgtccg      540
tctgtaaccg attttgctcg tcagagcggg gagcttggtc ccgtggaaaa atacaggatc      600
gtgtcgagga ggaactgatg cgtttgaatc ctttcatgcc aaaaaatata ttatctatcg      660
agagtggcgc accgtagagc gtgacagcgt acatccatga agcatacgat ggacggcatc      720
gtaacgatag agaagacgat gtgaatctgg gtaatgccaa catgagttcg catactcctg      780
caggcaaatt atgacttttg cttcggaagt aaccaaggac tatgccagca aattctgctt      840
tcgctacgct atagcagagc acacagggca ggagatatac atttcatgat ttggactatt      900
atccgaccaa aacgactaca tgtgtccagt agatatagca gacctctacg aacggggggt      960
ccgtaccaaa aacggcagca ccgtacaccg cagaatatcc atagctatgc aacgctggct      1020
accatcatat ccagaccaat cagaacgaac agcatggcgg acangctatc ccggccttat      1080
ttcttcatg                                     1089

```


(2) INFORMATION FOR SEQ ID NO:786

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2897 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2897

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:786

tgcgatttct	tgtatctgcc	cgggtggttat	ccggagtttt	acctgccgga	ttgagtgcc	60
acgaatccat	gaagcggtcg	gtacgggact	atatcgagcg	ggaggttatg	ctctggccga	120
gtgtggaggt	atgatgtacc	tttgcaacg	atacggggca	tggacggacg	ggactatccc	180
atgtgtggcg	tattgctgag	acggctacga	tggaaggaaat	gcgcctgcac	ctcggctaca	240
ggcgatggta	tacaagggga	aagagctacg	aggacatgaa	ttccactact	cttcactatc	300
ggctctacgc	cgctccgtggc	acagcagtac	aatgtgctgag	gcgagccgtg	gagactccgc	360
tataccgata	caagaatctc	ttggccggat	atcgcatctc	tactgggggtg	agcatgacga	420
tctgtggatg	tggttcgact	gtggaagcga	aacgatgtaa	tctatgatata	atacgaagac	480
aggagacaaa	gaaccaccgg	catattcggg	ggggagcgtg	tgccgaaaga	tgatgtacgg	540
tggaagccta	cggcacgatg	gatgagctga	atgctgccat	cggcatgacc	ggacattcct	600
gccggaggag	gatgagcgtc	agaccgtgct	gtacgatttc	agatgcggat	gatggcagcg	660
atgagtatag	tggccactcc	tgccggaagc	gtgagcagaa	tcccaatcat	ttccccgaag	720
aagcagcagc	caactcgagg	cttttatcga	caggcttttg	gccgaaacaa	ccgacaacgg	780
ctactcatte	ttccggcggt	tacgcgcgtt	tctgctcatt	tgcatgttggc	tcgacgatag	840
cacgcccagt	ggaaagaagg	ttgtggacac	tgccaccgatc	cgtgaagttc	cggatgcaat	900
cttgaagtgg	atgaatcgcc	tgtccgatct	ttcttcgtga	tggctcggca	cgaaatgcag	960
cagcaggggt	ggagcgagga	aagtggcata	gattcgccta	taagagaaag	aagaaatgac	1020
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agcgagaaat	atggccttga	attcgcttct	cacgcccgaag	gtttggagat	cggacgagcg	1200
cagctgtgca	ggccgaagct	gccggatccc	atgtcatacg	gatatgaatc	ccgtgctgct	1260
caagccgagt	tcgggtcatac	ttcacaggtc	gtgctcaatg	gccgtccgat	aggcaatcgg	1320
gatcttacga	atactttcga	cgagagggga	gggacgaact	gcgtacggag	gttacgccgc	1380
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gaattgaate	tgcgcgatac	cgatatagtc	atatgccgat	ggccatccat	gcaggtgcac	1500
gcgtgatcct	tgtggccgaa	tcgaccgttg	aggcgtgttt	gcttcgggtc	acggtttctat	1560
catgtttgct	ctgcggaaga	gcgaaagtat	gtacgaggca	tcgatgatcaa	taagtttggg	1620
gcgatcttcg	ccttttcgac	gaagggaata	agatccttga	ggaatttgcg	gtattcccgt	1680
tgtgggagta	attccttact	ataaggatat	tcatacgagg	aggaagactc	cgtagcactg	1740
tcggtcaagc	agtatgctgc	cggaaaggac	gggtgaatgt	ggctgtagtc	ctgctgcgat	1800
acttatcgaa	ctaacggact	tcaacgtttt	ggaacgcgat	cctcgcgtac	acctttatta	1860
tagaacaata	cgaagaggtt	gcgcaaggcc	gatattatca	ttctaccggg	cgcaagagta	1920
ccttggccga	tctctatgaa	ttgcggcgca	atggtgcggc	caagctatcg	tacaggcaca	1980
tcgagcaggg	acaacggtat	tggggatatt	ggcggattcc	aactcatggg	catggaggtt	2040
tgcgatcccg	accatataag	ggcgatatag	aacgcctgcc	cggctcgggt	ctgctgcctg	2100
taacgacgtg	atgacaggcg	agaaggttac	acgtcgcacg	gcatttcgct	ttctggtcat	2160
acggatgaat	gcgagggata	tgagattcat	atggggcgga	cgatgctgtc	gaaggtgcag	2220
catcttctcc	actgaatcga	ctctcgatg	gaacgaggat	ggatatttcg	tggatgctac	2280
ttgtatgggt	acttatgtgc	atgtatcctg	gacaatccgg	ccgtaataga	ctatctgctt	2340
tcaccgtatg	caacaaaatg	gaagagcgga	aaagcttcga	ctatgtccgc	tataaggatg	2400
acaatacgat	aaattggccg	accatctgag	acgatatgcc	gatgtcccgc	gattttacaa	2460
ctgatgaaag	acgatgatta	aaggacacgg	agatgacctt	accgtcacgg	ccccattcgg	2520
gcaaatttca	gttcgaatgt	ttataacgca	ccgagcgtca	gggattgctg	gatcaccttc	2580
acaggagatt	ggatagctcg	gttcctatcc	ggagccggag	ccttattctt	tggagaaagg	2640
tttggcgatt	atcacggtat	agctgccgat	tcaatcagtg	tgaccagcgg	tgccacgaag	2700

```

ctatttatct catagcgag gctttccgtg gatcttcttc agcctagtag ttcccacttt 2760
cagcgaatat gccgatgctt gccggctgca tggcatcgctg tggattttat ttccaagccc 2820
gaagaggctt cttctcgata tgtatggctt ggctctgtaa tccgaacaat ccgacgggac 2880
gtgtttgga gcaagcg                                     2897

```

(2) INFORMATION FOR SEQ ID NO:787

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 693 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...693

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:787

```

ctgcggatct gtcgttgccg aaagtcggtc gatgcacatc cgacttgctc cgggtgtagca 60
agcactcctc aagacgttgg atgaaatgga aaagaccgta tcgagcaagc cttggcacga 120
aacggcagca acctttcgaa tgtggcaggg aattaggcat cagccgccag actctgtata 180
ataagatgaa acgctagggc tgtagccctt cttctatggg aagacggaag accggcagtt 240
tcggctgcat ctgttattta ccatcgatcat ggcggtgggt ggtacttggg cggcgctgca 300
ggacattatg ccatcactgt ttttgcagcc ggactcgta tctttccgcc ttgcggttgc 360
gtttacttta tcggcgccat cttcaagatc ttccctgctc ttgaatgcta tcgagaatgg 420
cgattattcc gtgcgctttt cgaaatggga ggcaatgtct cgcacgaac attcaaccgc 480
acgcttaatc tatcaaggag atcctcagcc gttctcgtga tgaggctata gccggcgaga 540
gtttctcgta catgtattgg aacagattcc tgcggcatc atgatggtgc tccggaagga 600
tatgtctatt ctaccaatac agtgctgttg cgctcccg gttaccggtt atcacacacc 660
ttcgatcagc taaacgtgtg tcgccgacat gcc                                     693

```

(2) INFORMATION FOR SEQ ID NO:788

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 634 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...634

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:788

```

ggtaaattgg aatttcattc acaatattac acaatctgct taaagaaaaa agagaagaga 60
ccgcgccaac attttttata tgtttccttg ccaagaaaga gagaactcta cattcgaaat 120

```

ctctttgaag	acatcctggt	ctgaatttta	ggaatccgaa	ggccgtgtat	tattttttcac	180
tatatttgca	atacagaagc	tgattaggaa	ggcgaattcg	ggcgattttt	agcctgtaac	240
cggttctgat	cagttttttc	tttatttggc	atgtggtggt	gagtcaggat	acttttgtca	300
cttccatagc	gttccggcaa	gcccttacca	ctctcctccc	tcttctaatt	tccactaaaa	360
aacttgcacc	aaaaaagttt	tcaacaacga	agcgagtttg	gaatgattcc	aaataagcat	420
ccaaaaggga	gaggcatcca	agtaaaaaag	gatagaaaac	tgtcttccca	acttcgaaat	480
tcgttttcag	agagtcgaat	aacgatttgt	atataaatga	ctttcaattt	atatataaag	540
gttttcgttt	tatatataaa	tcgttttcaa	taaatatata	gatcgtaatg	attcgtatat	600
aaatcgcan	ctcgaaaag	ccttttccga	agcc			634

(2) INFORMATION FOR SEQ ID NO:789

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3765 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3765

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:789

gaatccanca	tctccctctg	gtcgagacag	tagtagaagg	cgggtactctg	taatcaaaat	60
gaagccatcg	ctatctatct	ctatcaataa	aggtgtccga	tcaggataac	tactccccaa	120
ctgtcagaag	cagagctaca	cggaaagcgtg	atattacatt	tgccggaaaa	ttccgtctgc	180
gatctcttag	gatcgactct	ccggaagcgg	tgacatcact	tttgccaatg	ccacgatagc	240
caatgtctga	acgtcagcct	tagaggtagt	ggcgacatac	ggggcaatat	ccttccggca	300
ggaatgcaac	tctctcgctg	gccggttcgg	gcgacataga	ccttcgctcg	gtcatcctca	360
gagagtggaa	gccggtatca	gcggaagcgg	agtataaaga	taaagggaca	aacagccttt	420
gccgcgctga	aatgcagcgg	agcggagacc	tcgaatgccg	taacctgtcg	gcccacaacg	480
ccgacgtaag	atcagtgga	gcggagatgg	caagctggct	gttaccgaaa	agctggatac	540
aacctatccg	gacagccgg	ccttgtctcg	tatggcaaac	ctgtcatcgt	acacacaaag	600
tcagccgttc	ttcctctttc	cgaatggttc	cttaaatcaa	cgacagcata	gattagaact	660
tttcatagac	gcgagtagca	ataggggaga	cattccatca	gagagaatgt	actcgccctt	720
actacatttg	agaagaaacc	ggaggtctta	tgccgcctcc	ataaatgaat	tttgaacag	780
ccccgatca	atcgtagatc	ccttcccccg	actcaatttg	tttgtatttc	atccggcata	840
aaaatggaat	ttttaattgc	atattataggt	aggtgtgca	aagcgcaatg	gtagttttta	900
tgtttggag	aaagtcgga	aatagttact	ttgtttttt	gcataacgat	tgcttttgcc	960
catttgatgg	gcgaaaacaa	tatgatcaca	gtaaagacaa	tgaacgaatt	caaaaaatac	1020
gcgacccgaa	tatcgggttg	aatgcacagg	ccttggaacg	ctataccaga	atccaaagag	1080
ctacatctct	ccgaccatta	tcgaagaacg	ccagttgaac	gttgacaaat	ggatgtgttc	1140
tcacgtctaa	tgatggatcg	gatcatcttc	ccttgccctca	gatcgacgat	tacacggcca	1200
atgtcattca	agcacagctt	ccttacttga	tagcgccgac	cccggtaaag	atatttccat	1260
ctatctgaat	tcaccggcgg	atctgtttat	gccggttatg	gcataacga	tacgatgcag	1320
tattaggggtg	cgatgtggcc	actatctgta	cgggcatggc	tgctgtctatg	gctcagtgtc	1380
gctcgtagca	ggaacgaaag	gcaaacgctt	tgctttgcct	cctcccgcgt	gatgatacat	1440
cagccgcttg	gtggtatgca	ggggcaggcc	gcgatttgga	gatcgagct	cgcgagattc	1500
tgcgctcaa	gaaagagctt	acacgattat	ctcttctcac	agtggaaagc	ccgtcgagca	1560
ggtcgaaaag	atagtgatcg	ggactatttg	atgacagccc	ccgaagcatt	ggagtacgga	1620
tgatagataa	aatcctcgaa	agaatcgaa	agtagccctc	tcgttaccaa	agggggactg	1680
tatatttctc	atggcaagaa	aaaaggacga	agaatctgta	gtttttgtgg	catgccgaga	1740
acgcaggtaa	acctgatgct	cgaagagtcc	atgctcatat	ctgcgatgaa	tgtgtctctc	1800
gtgcaggaga	ggtgttcgag	aagcattgca	aaaattcaaa	tcggaagaga	cgaacaatct	1860
gagagagagg	acttgccctg	gcctatagag	atcaaggaat	ttctcgattc	gatgttatcg	1920
ggcaggatga	tgccaaacgt	tttctttctg	tcgctgtata	aatcattaca	aacgattgct	1980
ccagcaagag	gacagcgatg	gcgtagagac	gagaaaagca	atattattat	ggtcggctcc	2040

acgggaaccg	gcaagacatc	ttggtcgtga	cgatagccaa	aatgctccat	gttcctttcg	2100
ccgtagtgtac	gctacgggtac	tgaccgaagc	cggtatgtg	ggggaagaca	ttgagatatt	2160
ctcaccagac	ttttgcaggc	cgagactac	gatgtcaaac	agggcagaga	gggattgtct	2220
ttatcgtatga	gatagacaag	atagcccgtg	agaggataat	ccttcgatta	cgcggtgatgt	2280
cagtggcgaa	ggagtagacg	aagtttgctc	aaacttctgg	aaggttctat	cgtaaatggt	2340
cctcctcaag	gcgtcgcaaa	catccggagc	agaagatgat	tccggtggac	acgaggcata	2400
tctcttcggt	tgtgccggag	ctttcgacgg	catagagaag	aaaattgctc	gcgactcaat	2460
actcgtgttg	tgggtttatac	tgccggattg	caaaacagga	tatcgatcgt	gagaatatgc	2520
ttcgctatat	tcgtccgcag	gatttgaatc	ttttgggctg	attcctgaaa	tcacggtcgt	2580
tttgccctatt	ttgacccttt	ggagccgtta	gatcgggatg	cccttagaaa	catcatgacg	2640
gagcccagaa	tgccattacc	aagcaatacg	aaaaactgtt	tgccatggat	ggcataaggt	2700
ttctttttaca	tccgatatgc	ttgatttcgt	cgttgataaa	gctacgaatt	caaactgggt	2760
gcacgcggac	tacgtcccat	cgtagagacg	atctgatgga	tgcgatgttc	acgatgccat	2820
caggtaagaa	gaagactttg	gtgtagacaa	agcttatgca	gaagctcatt	tgaatatattga	2880
cgatttgcta	cagatcaata	atagaagtac	ccccaaagaga	atctaacccc	aaggagtgtgc	2940
acccggagtgt	tagtgtgaca	cctgtcaagt	gttgattatt	ggacattgtc	tggccgaaaa	3000
attacagcag	tattttggat	ttgaccgatt	caaaggcatc	aggaggctat	cataagaaat	3060
gtattagccg	aacgaaacac	ttttgtgtga	tgcctacggg	aggtgggaaa	tccctatgct	3120
accaattgcc	ggccatctca	tgaccggcac	gaccatcgta	gtctctcctc	ttatcgctct	3180
gatgagaatc	aggtggatgc	catgcgtagc	ttcagtgcc	aggatggggg	cgctacttta	3240
tgaattcttc	tttgaataag	acacagctcg	aacgtgttaa	gaagatgtac	gcgatggact	3300
taccaaaactg	ttgtacgtcg	ctcccgaatc	atgacaaaag	aagaaaacat	tgcttttctg	3360
cgtgaaaatag	atatcttcgt	tacgctatag	acgaagccca	ttgcatatcg	gaatgggggc	3420
atgacttcag	cccgaataca	gacggattcg	tcctatcatc	aatgagatag	ggccccgatg	3480
atcatcgctt	tgacagccac	ggctaccccc	aaagtgcagc	atgatattaa	aagaatcttg	3540
ggatgatgga	tgccgatgta	ttcaaatcgt	ctttcaacgt	cccaatcttt	tttatcatat	3600
acgtcctaaa	acacaggacg	tagatctgac	gtagtcaaat	acatcctatc	ccagccggga	3660
aagagcggta	ttgtcattgc	atgagtcgaa	ataaagtaac	tacttttggc	caggttttgc	3720
aggcaatggg	atcaaagccc	ttccctatca	tgccgggact	gacgc		3765

(2) INFORMATION FOR SEQ ID NO:790

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 772 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...772

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:790

gtgtgacttc	cgacagaaca	gttgtgagca	atctgtacaa	ggttgtctac	tttactccgc	60
gatgtatgat	cgttgaatcc	ataacagccc	tgtcgataaa	gtgttggcac	cgatttcgac	120
atcatcttca	atgataacgt	tcccagtg	ggaatcttgc	tgtagccttc	ggcattcgga	180
gcaaaaccga	atccatcgct	ccgataacgg	ctcccgaatg	aatcacgcaa	cgcaaacgga	240
tggaaagcca	tcatagaccg	tcacatgggg	gtagaggatc	gtcccctctc	caacgacaca	300
ccgctaccta	cataaacatg	cggatacaag	ctacagcctg	taccagcgat	gccccttccg	360
acacgtaggc	aaaagctcct	acatagcaat	caccggcagt	atcaccgatg	gatgaacgaa	420
agccgtggaa	tcgactccct	tctttggggc	ttcatgctgt	ccaccaactg	cattagttgc	480
gccaatgctg	ataggcattg	ggaactcgta	tcagggtcgt	cttcaccgat	tcgcgcggtc	540
gaagtcctga	ttgacgagta	ctgcatcgga	ttgtgtttgg	tacaaatatg	ttcgtaactta	600
gcattggcta	aaaacgagag	acagccacta	cgaccttctc	tatcttggca	aaagtcgtgc	660
agtcgcacct	tgggattggc	ctccacgaac	cgtggaggta	gtcaagctat	ctggtgggct	720
gtaaattcca	tgtgacgggt	taattagggt	acaatggatc	ttaaaacatt	tt	772

(2) INFORMATION FOR SEQ ID NO:791

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 481 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...481
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:791

```

gagagggaaa agtgctcaga acaagtaaaa aaatgaccgt catagctatc atgaatgaag      60
aacggcaacc tgtgttctct ttcgtttttt gatgagtaaa ggtaaaagca aaatctttcg      120
atatgggtca ttttcgaagc tgaaaaaacg gaatattcac cgaaaaatat gcgcaaaaaa      180
agttttcaac aacgaaaagt gtttggaatg attccaaata agcacttctg agagatcgaa      240
attcgggtaa agtacgtaac atgacagcct ttttcagatc gaaaagctct ttttttagtt      300
cgatgaacaa tctatatatt aatcattttt gatttatata taatcgtttt cattttgtat      360
ataaatgatt ttcaataaat atatagatcg aaatgatttg tatataaatc acaacttcct      420
aaaggctttt tcttgaggga taacagaggc accatcggat tttctcttga atcgacggtg      480
c

```

(2) INFORMATION FOR SEQ ID NO:792

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 741 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...741
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:792

```

ggcgatgagt tgcacttctc cgtattggca ctttatgatg aaaaacgcta tcagttggga      60
ggaggcgtct ataattgtgca gaaggaaaag ttcaaactaa tgttttctat cagagtgata      120
gtgcaggcgt ctaccaacca tatatcatga aggcaagatt aagggacagt tgcttctgcg      180
cgtgttgggc atggacgact ggatgccaaa caagagcctt accctgatgg tacgtacgac      240
tttgtgatgg ctatacgatc ctccctcaga aaggagttgt gatcctccct accgggagcc      300
gttcggaaag acccttgccg atgcgttttg cgatcctgta ttgcgaaaaa gtactgcttc      360
caagagctat acgatacaac ggcagtggct gccagcaagt ggcagagaag aacaaattta      420
tcttccgagg cgaatacaaa gttctccggg cggagacatt tctttgggag ctatcaacgt      480
aacacccgga ccgtcgtagt gacggccggc ggtgtcaagc tgacggagaa tgtcgattaa      540
cggtagacta cctctccggc aacgtatcga tcatcaatga agcgattcct cttcgggaac      600

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```

tcccatcaat gtgtcgctcg agaaccgagg gctgatgata tgcagcgcaa tgcgatgttc 660
ggtatagatc tgaactacaa cttttcaaag acttcaccct cggcggnacc ttcatgcacc 720
tgagcgaaat gccgcgacga c                                     741

```

(2) INFORMATION FOR SEQ ID NO:793

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 639 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...639

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:793

```

tcatacatctt ccaaatacatc gtcaacctgc gcgacagcct tcgcaatatt ccaaagagag 60
ctttcttggtc cttacctcat tgggagccac tcatgctcac tgatgcgtca tctggctcta 120
ccggccatta ctcccgaagc actctccac tacgagtggc cattgggaca gccatatcag 180
tactcttcgt gacagaacat acgggacgaa taaagggcat gggattcttc attgtcgatg 240
catgggtcgt atcagctata cggagatgta cgtgggcatc gtgggttttag ggatgcaggt 300
tttttcttt ttttgctcgt ggatgggtctt gagaccgcac tatcagatgg aggaacagtt 360
agccatacaa tcaaagaaat catcattcaa caaacaataa cgatcaagaa atgaaagtaa 420
aacatctatt agctgcatcc tgatgatgct aggaacaggg aatatttgcg cccaaaagtc 480
cgcaaacagt ttttcaatgc aatcaaagaa cgggttagcc tcagtgggta tgcgcaagcg 540
ggttttcttc ttgtggcttc cctacggcga gttccgaaaa nggagaacac acacattcga 600
tgtaaagcgt atcaaccttc gtgccatgtc gcatcacga 639

```

(2) INFORMATION FOR SEQ ID NO:794

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 575 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...575

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:794

```

tccaatcgta ttccgcttca tcaaacgggt tggcttgggc gcgaattaat tcttttcattg 60
gcatgtgggg agatcttact ccccataata agcccgagc gtcggtagtt ttctctttcc 120
cgaaaatact atcccatga atcatactgg tacatggaag ggagcatagg tctggagaat 180
atcttccggc tctgcatc gaatacttcc gacgcttcac ccaattacaa acgactccga 240

```

ataaagggga	gtccgtgctc	gcttccagat	cactttctga	cctctaaagg	aaagggaaat	300
gccgaaactt	ttcggttctga	catttcctcc	tcttcgaagc	gatcttaata	gaatcagagc	360
ttgatgaagc	gttcggccgg	tgtgctgcct	tggatcatgag	tttgatcaca	taggccccgg	420
cggtcaaaac	cttcacgccg	acatgcgagt	attctccata	gagagcacca	aacgacctga	480
aaaatcaaat	tccggacacc	gaagtcacct	tcattgcttaa	tattcagtag	atccttcacg	540
gattggggta	aaccccgga	tcagaagaaa	aataag			575

(2) INFORMATION FOR SEQ ID NO:795

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3647 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3647

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:795

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cagaacgaaa	agtttagaga	tgtcaatacc	gtacctcctc	cgataccgat	tacgcggctg	180
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gcccaatttc	tcctgcataa	caaaatggca	ggggagctgg	catgccttca	tataggttca	300
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aaactttcgc	tttattttctg	tttttagtgc	attctaagtg	tttcaggctc	ttcgaggaaa	3600
agtttttagat	tccttgttagg	ccaggatggg	gttctttttc	tggttta		3647

(2) INFORMATION FOR SEQ ID NO:796

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 734 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...734

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:796

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ccatttagag	agagcatata	accaccggg	aactctgccg	gactttctac	cacttcgtgg	240
atttttcctc	ttcttcctca	actttaacgg	gggcaacggg	cgcaggcg	ggcacggttt	300
gctctcatcg	acagagacca	aagcgatttt	ctccactttc	tggtgttatc	taccacctta	360
aattcttccg	gcagctgtac	ctcctgttgc	tggtgtgtgc	cggctcgggc	tgctccggct	420
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tttcttgatt	tccatatctg	atagtattgn	ttttgattct	tgctttgggg	caaaaataca	660
aagttttttc	atncccaatt	cgttttggtg	gaaaaaatca	ggcgtatggg	gcaaaattgc	720
aggctgcaaa	aatc					734

(2) INFORMATION FOR SEQ ID NO:797

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3584 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...3584

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:797

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cattattttt	acttttgttt	ctaaaataga	atacgaatga	cagagcacag	ttgcgaggta	120
tgggggttgc	cctgattacc	ccnttcgcga	aaagggcggg	gtagaccacg	aatcgcttcg	180
acttttagcg	gattataggt	agcgggaggt	gccaaactaca	tcgtagtact	tggcacaacg	240
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aatcggattc	caagcccatg	gccaagaccg	gttagatgcc	atcttatccg	ttgctcctta	420
ctacaacaaa	cccacgcaag	aggcatttat	agacattata	ggactttggc	cgaatctact	480
gatacgtcca	catcctctac	aatgtccccg	ggcgaacggg	tgtgaatatt	aagtcggaac	540
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atcgatcata	ctgtttatta	tgaattacga	aaaagaccct	gcaagccttc	cccgatcacc	3480
tcggccatct	ctgtttaaga	cagacgaaaa	aacgccctcg	acaacaagct	tcccagtgcc	3540
tccggcacat	atatgcgaga	tgcgggctac	acagaagtct	attc		3584

(2) INFORMATION FOR SEQ ID NO:798

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 765 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...765

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:798

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cggatatcgg	caacggctaa	aagcggtaac	tatgcccacg	aagaagtcac	gattataagc	180
gtattcgtaa	tttcccttcc	tcttagagcg	gtcgtcgaag	aggattgcct	attgtcgttc	240
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ccattcgggt	ttggagccct	tcatcgata	gttcagaccg	gagccaagta	gaatcctctt	660
gatccgatca	tgaattcggc	agcggcccga	cccgcaggcc	gacattcatt	tggtgtccca	720
cacatatccg	tctctttcat	gctctgattg	ctgcctacga	agttg		765

(2) INFORMATION FOR SEQ ID NO:799

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 915 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...915

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:799

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tcgatacttt  tgtcagaaaa  aatttcggcc  gagatccgc  tccgtttgac  acatcggctg      60
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accaagacgg  cgtcgggctg  tagcactaga  tcgggaagac  ctttctgcga  ttcggacagt     180
acgtcccaca  acgaacagaa  gaagccgtgg  ctatctcgtt  aagacgagac  agagtgggat     240
ctcctttcct  cgcttgggat  aattgattac  acgcctgagt  gcttcgtcat  cattggattt     300
acgattagac  gaaaataggc  caggacgtcc  ttgatctctt  ttccgaatag  aacgaaagcc     360
caccgtatat  acgaaaaggg  atattgtgtt  tggaaagtgt  tcctcgaaaa  ctcggtctctg    420
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tcgacgatcg  atccgctacc  gtataagcct  ccaaataccc  cgacagacaa  cccgtcaggg     540
aatacgtcga  cctacttggt  tgttcgaaaa  aacttgcttg  gggattcgcc  ctcatgtgtga    600
gcaatcaagc  tattggcagc  attgacgatg  ctctgtgact  ccgatagttc  tcctcaagtt     660
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cacggaaact  gtataactct  gagcatcatc  cccacgacg  aataccttgc  ctttctcccc     780
catcactgcc  tggcaatcaa  atactgtgca  aagttgggat  cctgatattc  cgtgatcaat     840
aaataatcga  tgcggtcacg  gtaggtctgc  aagacatccg  gaaatcacga  aaaaggacat     900
tgttttgaaa  agcag

```

(2) INFORMATION FOR SEQ ID NO:800

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2075 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...2075

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:800

```

tcggagagag  acgtttttcc  ttcgaaaaga  taactgccat  cccccaaaac  ttaaagggga      60
gttcttcttc  atcgtaactg  tccgtaatct  cgccgacgtc  tcttcccaat  atgtcctcca     120
ttgtgatcag  tccgcaagtg  ccaccgactc  atccacaacg  atggagacat  gcaccttatt     180
ggctctgaac  tcctcggaac  atcatctatg  cgcttgtttt  cggggacaaa  atatgcttta     240
cgaatagagg  atgccagtcg  aattcatcgc  ctttatccat  gtgtgggatt  agattttgat     300
gtaaatcacc  cctttgatat  tgtcttctga  cccctctgaa  acggaagtct  ggaataacct     360
gacgaaacaa  cgaagtcaag  catcttacga  aaggccagct  cagatccaca  tccacaatat     420
cgatacgcg  aacctagatt  tgcaggctgt  cttattatag  aatttgatga  tttcgttaat     480
catttctttc  cctccgctc  tcctccgta  gtggtgagg  ctaccgcttt  cgagagctct     540
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cgcgagtatt  gcagcggatt  cttccggcat  acactttcgg  cagaatctct  ccgaacagca     720
aaagaacagt  ggtagagata  tcgtctggat  cagaaatcca  atgatcggag  aagagaaaac     780
gaattctgct  cgatggcata  attggaaaag  ataacgatgg  ctacattaat  cacttatttc     840
cgatcagaat  agtagctaag  agctgattcg  aattgtctaa  taattggaaa  gcgcgatgtc     900
ggaagagtga  ttccgttcgc  ggatgttcgc  cgatcgatcg  gctttagtga  aaaaataaggcc    960
acctcacagg  aggacataaa  gccgaacagc  aaagaagaag  caggtcgata  atgaaaagcca   1020
ctatggctgt  gcaccgatag  gattgacccg  aagcccttca  aaaaaatcag  taataaggggt   1080
aagtccaaaa  taaatctgat  ttgggttaga  acggaaggct  ggacggagtt  ccgagctttc    1140
ttcttttgcc  gtatcacgga  cggatgaaga  agacgcaggg  gcgtcgtatc  ttgagtcgat    1200
gaaggtgtct  gtgaagttct  gctttgtctc  gattggagga  accgctttca  aaaaagttga    1260

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ttttctcggc	aagggtttccg	tcacttgccg	acgaacccct	gtattgtcta	catacgtgcg	1320
gtacggattt	tcccttcgac	atataggaga	ctccctttct	tgatccactt	ctggcaaaaa	1380
tgcccaactc	gcgataggca	accacattat	gccattccgt	tgctccggca	cttcagtgcc	1440
attggccagc	ttgtagcctc	gctcgggaag	gccagcgaaa	agtttgcgac	agccgaattg	1500
ctatcgaaat	accgaatctg	ggatccttgc	ccgtacggcc	tatcaagatg	attttattca	1560
gagacatggc	aattttctaac	caagtgaacg	aaacaaaaat	aggaaatatg	attcgttaag	1620
ccaaatgctg	ccctgtctgc	aacttgtgca	tatccgatgg	gacggcgaa	gcagcaagcc	1680
aatcaactgt	tcacgaagtt	tccggcgaga	ataatctgac	gcacggccaa	acgtacttcc	1740
cttaccggac	gaggcatacc	aaacgacgca	ccagctcttt	ctgcgaagg	gataattgct	1800
ctacggtcag	ttgggaataa	acgtaattcc	ctgaccgctc	tccaccaatc	gcatgaatgc	1860
ttcatgctac	cgccggaata	tgccgtctga	cgttcatgca	accctttcat	cgacaaaaac	1920
gaacgagctg	atctctgaag	caatgacctt	cgtccaacag	cagagacgat	gtgggttgac	1980
ctcggtagt	cgaattacat	cttgttcgat	agcggtcac	agcgcgatac	ataccccgaga	2040
aactcctcat	aatagagcag	tcgtcttcaa	gacct			2075

(2) INFORMATION FOR SEQ ID NO:801

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3195 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3195

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:801

tcgggacatg	ccttgtcgga	ttcgtttcgg	gtgagtcceg	atacgagtga	ttcatgaaaa	60
cgacatcggg	acaataaaag	gagattacat	ctacccaaca	ttatcggcgg	gtgcatctat	120
gaattgtatc	ttgtagccgg	tgattttttc	agtagagctt	ccagccctgc	acgaatcata	180
ggtagcggtt	ccactacgct	accttgagtg	tgatgatatt	cataatccgt	tttccctttc	240
tatttacgaa	tcaaaggcac	gaaaagatgg	tcttcgacaa	agttgtgtgc	tgacaatcgt	300
cttccgagga	gaatatgtcg	tgacgaacgc	tgttgagttc	gtaccactcg	atgtcgggta	360
gtatttgatc	agcaggttct	taagttcggg	aacttcagct	ctatctgac	gtggcggttg	420
ctgaatatat	cgattctgta	ggcgaaacgt	tgtccaactt	tccgcccaaa	agtttttcca	480
cataagggaa	accgttttct	cttcgtagct	catgtgcttg	cgtacttcc	ccacatacta	540
tcatagaatt	gacgaatgac	gaataccact	tcggatggac	agttggacgt	gcgggcaaaa	600
ggtccttgac	cggagcaaag	ggcagacgaa	attcgagaaa	taattatg	actttcgcag	660
atagttgatc	aggggaaggag	ctgacaatct	gacaagacgg	tctcggaagg	gtgttcggga	720
cgggttgata	gtgcatgatt	acagccatga	gggtattggt	gtttacctta	ttgtcctcac	780
agactctcgt	atgctctttt	ctccgaaacc	aagcgaaata	ccaaagcgcg	taagaccagt	840
agtaagtcgt	aattctcgca	tatcaagtca	cttagctttg	tatgggtgag	tatgatttct	900
ttatgtgatg	tgttgtcata	cgaaaaaata	tgttttgttt	caaacaaaag	tatagttatt	960
ccgcctaate	gacaatcccc	catataggtg	tctgcttgaa	atcaaatgat	ttcgcacttg	1020
atcgtttctc	ttcttatgct	ggttcggctt	aaaccccttc	aaagagggaa	tggcattttt	1080
cgtcagaatc	ctgtggagag	gtctttgtct	ttcttttcgt	cttcattatt	ttgtactgct	1140
ctttagtcgc	atatttatga	gaataatcca	tactttgcag	cgaattttta	tgaacccaac	1200
taacttaaag	caatacggag	gtagtgaatg	aagaacatcc	tgattatcgg	ctctaccgga	1260
cagatcggat	cggattgact	atggagttga	gaaagcggtta	tcctcaggga	aacgttgtag	1320
cggttatata	cccgggtgcag	agcctaaggg	cgaactactc	gaaagcggtc	ctccgaaata	1380
gtagacatca	ccaatgccaa	gcaaatagca	gaagtgggtg	aaagtataaa	gtagatacga	1440
tttacaattt	ggctgccctt	ctcagtgccg	agcagaagcc	aaacctcagt	tagcatggca	1500
tattggtctg	ggaggacttt	caatacactg	gaagtagctc	gtgaaaagaa	ttgtgcagt	1560
tttacgccag	ctctatcggg	gctttcggca	atgatactcc	taaggataag	accccccgga	1620
tactattcag	cgtcccaaga	ccatgtacgg	agtaacgaag	gtcagtgcca	gcttttgagt	1680
gactactacc	acaagcggtt	cgggtgtagat	acacgtcggt	tcggttcccc	ggtttgatct	1740

ccaacgtcac	cctccccggt	ggtgaacgac	ggactatgcc	gtggatattt	attatgcagc	1800
tgtcaaagaa	ggagcttcac	ttgtccgatt	aaagagggtg	cttatatgga	tatgatgtat	1860
atccccgatgc	tcttcgtgca	tgcgtggagc	tgatggaagc	tgaccctgcc	ctctggtaca	1920
tcgcaattcg	ttcaacatca	ctgccatgag	tttcgaaccc	cgcagatagc	ggcagcagtg	1980
aagaagctgg	tacctgattt	tgttatgaat	acgaagtcca	tcctcttcgt	caaggatttg	2040
ccgaatcgtg	gccaaactat	tggatgattc	tttgtctcgt	agtgaatggg	attggaagcc	2100
ggattacatc	tcgattccat	gtctgcagat	atgatccaga	tactgaaagc	tcgctaggca	2160
agtaaacagt	cttttttagct	gccgataaccg	acttctttcg	gatattatcg	atcggcacaaa	2220
tactcatgat	gggggctgtg	tcaaaattca	ttttgtcaca	gcccctatct	tttcagttact	2280
cataatacga	tgaagttcca	acttcacaaa	ctagggtctt	ttttattcgc	caatttcgag	2340
taactcagtg	caatcaataa	attaatgaga	gacctttgaa	aaaagaggag	gttatcaaga	2400
acaccctttc	agtgtcattt	tttcacagta	ggatggtaac	tgtcgaggat	ataaagctcc	2460
ccttatccat	cgggtccgacc	tcaaaaacaa	ggccggccgt	gagtgttcgc	tcacccgaga	2520
cacatttgga	tataatgaga	tagagattaa	ggctatgctt	ttgaggatgt	ttcggtatgc	2580
gttttggcga	ggcttcgtac	cgacaacgac	ctccattaaa	ccatcgatgc	atgctgcctt	2640
tgaatcagtc	aataacttta	atcttttggc	gacgtattcg	gatactgatt	tatgtctgaa	2700
aaagctgata	ttcgggaagg	ttagtttgtg	atttggacta	caagatctta	ctaaacttta	2760
tttttgagaa	aaggcttgaa	agttccaaac	acatagctac	ttttgccgga	gtaattctctt	2820
actattattt	agagttctct	ataagaccca	agaaattatg	acaatgctgg	aggctaagca	2880
ccccggcgaa	acgaattcct	ccaagcagtg	aaggaagttc	ttctctctgt	agaagaagtg	2940
acaaccaaca	tcccagagtc	gaaaagaacg	gtatcatcga	gcgtatcgtg	agccggatcg	3000
tgtattcaca	ttccgtgtac	cctgggtaga	tgaccaagta	aggtacaggt	aaacatcggc	3060
taccgcgttc	agttcaacaa	tgccatcgtc	cgtacaaggg	cggatatccgt	ttccatcctt	3120
cagtgaaacct	ctctatctga	agttcctcgg	tttcgaacag	atgttcaaga	atgcactcac	3180
tactccccat	gggtg					3195

(2) INFORMATION FOR SEQ ID NO:802

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 849 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...849

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:802

caggacctgc	caaaagaaaa	gtttgccggc	aaattatgct	cggcaccatc	tctcgaaaag	60
aagaataggt	agtagcaagc	ctatagtggg	tggagggacg	tatatactga	tggaaagagg	120
tcgcctattg	ctaccgattt	ctgatattat	tccatttttc	ggttgtcttg	ataggaaagc	180
aaatgtccct	tttgtgaccg	gtcgaaagta	aaagatccga	tgccacaatg	gaagcaccat	240
cagcttgaat	agctgtgcga	ggaaaagcga	ttcgaaggca	cgataggaga	gttcataccg	300
gtgagttcgc	taagctgcga	ataagaggct	gttacgtagc	gttggttaatg	gcatcagtta	360
ctgtcatacc	ttcgggtgta	atccatgcac	gcctggccact	acgagaggaa	aaggcatggc	420
aacgaggcgg	ataccacgat	tcgaacgagg	gtcaattcga	tacgtgtatt	cacctccttt	480
tgatcgaatc	gagaatagct	ttgcccgttg	cactgaatct	gtcctgtcga	gggtagtgcc	540
cttgatattg	gcaaaaagag	cagcagggct	actgacttcc	atatcgttcc	ggcaccggat	600
atggacccga	atgtatgggt	ggaaccgcac	cctgcgaaag	caacgacaca	aaaaagataa	660
cgacgataaa	tgaaatccca	agggggcaaa	cttcttccta	agcatcattt	cttcttttct	720
gggatatat	ttcctgttct	atcttcttgg	ctagcatggg	actgcctcct	ccaccgatct	780
ctttgcccgt	ttccattcca	acatagcttt	ttctttctct	ccgagcatat	agagacatcg	840
ccatggtgc						849

(2) INFORMATION FOR SEQ ID NO:803

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1781 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc feature
 (B) LOCATION 1...1781
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:803

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ggttgatctc ctttcttcgc aaaaaggaca ctaatactcc ctgctttaaa atccggaaga      60
ggtacagcac atttgtgtag ggagccattc gtgtccgaga aaattgattg aacatttcgt      120
ctctctttat ctatctgttt tggggatttt tatgatatag tttgataatt gcacttattg      180
taaaagtatt atgtcattta tgagtgggta atctgtaata gtataataat atatgaaatg      240
atggcttgag tggatgtttt tcatgcagat cggaaagaat tttttgttgg acataatggc      300
ttgagataat ctgtttgtta gttaaatttca gcgtttttgt gtcgcgagca ctgaaaaagt      360
caattcttag agaagtctgc cgatattgtt atgggtgtccc gtattttttt ttgcctcaca      420
ggtgcccgat tccccccccc ctttttgatc gaatatctgc actggcaatg taaccttgtg      480
cacaaagaat taataattcc acagggcaat cgcatttgaa ccgttacaca cttatagatt      540
aacgattgct acgctcgggt atcaaacaag tacgaattaa tgggaccttg cacataagc      600
aggcactttt gtttattctt cttattgtgt gtcaggcact atttggtaca cgcggattt      660
ccacaagtgg aaagatagct ttccacgggt gaaaataaac tttccaccaa tggaaaattc      720
tttttccaac ggtggaatct acttctcttt aatgagtacc ctttgagac atccaacgac      780
atgacgtcaa cagcacttgt gctcctccaa tcatcgctt gctccccgtg tatcaccttg      840
tgtgccacgc tgtgcgctct gattcacatt acgtccatac gaccgatacc tcctccggct      900
ccaataatct atccggctac cgtcgggtaca cgtagcagcc aacaatacca atgaggagaa      960
accgctcga atgaaaccgc aaaccaattt aatgcgtcga ccccgggggc agcctgtcag     1020
ggcgatcgct ttgaaaattt ttagtctctt tcctctatga tttgaatctc tggcatatga     1080
ttcgcacttg ttttgataat tgaatgtagc aatcgtagg tttataatgt gttgacagtt     1140
caaatgcgat tgccctgtat ccgagaaata atgcagaact atctctcgga aaaagcacta     1200
cctttgtagt cattccaatt taattcgtag taatcaagca gcaaattgcg tgtgatggaa     1260
aaggttatcc gcaggctctc atatcgggtct atcataaaga aggtttggcc gagatactgg     1320
ccgattgaac agacaagggg tagagttcgt atccacagga ggaactcatg aattatcact     1380
tcgctcgggt atgcgtgtcg ggccgtggat gatctgacgc gtatccttcg atgctcgggg     1440
gacgggtgaa gacattacac ccaatgatct cggcgggtatt ttggctcgtc gcggtcatga     1500
aagcgatgtg cgagaagtag cgagtacggg ttacctctta tcgatttggt catcgtggat     1560
ctatatcctt cgaggccacc gtggcatcag gagcatcgga agaagatata attgagagat     1620
agatataggc ggtatctctc tcatttagagg agctgccaaa aacttcaaga tgctgttatc     1680
atctcgtcac gggcacagta tgccgattt tacagctgct gaaagagcag ggagctcgaa     1740
cctctttggc tgaacggggg atccaagagt cgagtgcagt a                               1781

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(2) INFORMATION FOR SEQ ID NO:804

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 624 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...624

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:804

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gtatagcctt gacggacgaa tacgacacga ccgaatgagt cggcgatgag acgatcggca      60
gattggtcgc atcaggcagg ttcgcagcct cccgtatctg gcggcattgc ggccttgaat      120
atccagtcgc aatacggctg tctcgggagg gaggggaagt ctgccggttt gtaacgcttg      180
tgtccgtcgg catcggaag aggaggatca gcttgcgcc ccactgctcg aagtcggctt      240
tcacctctcc aaatctttca gagcatggtt ggtaggctcc tgaccggctc cgagatggcc      300
atcgcgaaat agccgcgtcc tgtggtagag aggagcgagc ggtttctgca tgggagagat      360
cgtggtagag ctgttcggca ttgatggagc cgtcacctga atgtcggtcg aatcgtgtag      420
cagttcgagc ggttggcgag cgtcttaccg gcttctaccg tgaacttcct catccggcac      480
aatacgctgc actggccata cgcgtaccgg taacgaggaa ataatgacct gcattcattc      540
cttggggcgg tcgaagagcg tcttcaggtc agtcggttca ttttcattca atagagcgtg      600
cggatgatgc ccgaggtgta gctc                                     624

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(2) INFORMATION FOR SEQ ID NO:805

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1001 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...1001

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:805

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aaggtcgctg ttgctgaaaa gcaatgtagc gattgctata gcaaataacg atttcattctt      60
catttctgct gatattttta ttggatttat accggtcaaa tttgttttta cagaggtcaa      120
atatagtcaa aagtgcctga tcggtggctg agcgataacc tcctcacgag taccgctaag      180
atgcagacag tgcgcgaagt gtccctcaccg atgacaagag cgatccaaac tgtgccgacc      240
ggcacagatc cgaaccgccc gaaggtcgag ctattcccgt agtcgcaatt cctaattggc      300
atcaagcaga cggcaaacac ccacagccat actgcgtgcc acagctcgct gactactgta      360
tggctttcaa tatcggttg ggacactccc aaaggcgtat tttgatgtcg ttctgatatg      420
ccacgaccga acctctgaaa aagtcgaggt tcccgggcaa tgagttagag ccgaagcaat      480
agttcctcgc tgcaactctc ggcagtagcc aatgtaaggc ctgcgtcagt caagagcttg      540
ccagttcgga aataacggga ttatccatca gaccgtgatg cgcgagaagg aacagcatcg      600
atggggcaga aatcgccctg caagtactta tagtatcgga aatggctacc atagcagcat      660
tgtccgttgt ataggcgaat ttgggatgaa tacagtcag ccataacgctc gggcatggtc      720
atgaaaagca tcgcgagtc ggtattggcc gatacacgcg cggccaaggc cacttgtttg      780
atgcatgatc tttggccgct tggcgaagtt tcttcatcaa gatgtctatg acctgtgctg      840
aagagatgcy cacagatcgg ccttgttctt ttctatgaag tcggatcttc ggccagtttg      900
tcgcgcagag tatagaggaa tgatgtcttg atccgctgaa gctatagtcg taaccggaca      960
catgaggacg ggcaaaagcg aagcatcggg gttgcctcgc g                                     1001

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(2) INFORMATION FOR SEQ ID NO:806

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 567 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
 (iii) HYPOTHETICAL: NO
 (iv) ANTI-SENSE: UNKNOWN
 (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
 (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...567
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:806

gctccttacg	ctttaatttg	gtttgcaaaa	atagtaaata	tccttagtat	cggaaaaata	60
caatcgctcc	tctctcgatc	tttctcgcg	ggatgagaga	aggtagagag	aagagcgact	120
gcagcgggaa	taatctctgt	cgggtgcgc	ggcctataat	cgagatcttg	tatccccggt	180
ccttatagtt	ctacttgaag	gtccggatat	taccgtccgg	ataaaaccca	cgacgatga	240
tcaaggaccc	gatcggctct	gtccggcctc	acgaacgatg	tcgctgacat	cggccccgag	300
cttaccgggt	ggcggttgat	cgaaggatg	atgaatcctt	tctgatacct	gcatacctga	360
attccccga	gcttacagag	gttacctcta	cacataagaa	acaccatagg	atcgcatattg	420
ttcggcactg	agggctcttg	atgatgctcc	caatacattt	ccggtcgatt	cgnccggtga	480
ttaccgaagt	cttccttcat	tggtctttga	gcgtgacngt	cagttccttg	gtcgccttct	540
acgattgatg	gtcagcttca	ctttgtc				567

(2) INFORMATION FOR SEQ ID NO:807

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 915 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
 (ii) MOLECULE TYPE: DNA (genomic)
 (iii) HYPOTHETICAL: NO
 (iv) ANTI-SENSE: UNKNOWN
 (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
 (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...915
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:807

aagaggccgt	attgggaaga	tgaaacgggt	tttgcgaaac	caaagaagag	gccatgctac	60
ctttatgccc	tatgctacaa	cagcattgtg	caggctgaga	gcggtatcag	aaaccttggc	120
ttactccttc	gcaggcagaa	tttttattct	gaacggcttg	tggtattttc	gctattttcc	180
cgatgcccg	actgccgtac	cgattttgtc	gaagatctgt	tcgatgtgtc	tgcatgggat	240
accatacagt	accatcggtc	tggcagatga	aagggtggga	tacaccttta	tatacaatgt	300
aaaccacatc	tttgaggaca	atcctccatt	tattcgcat	cagagactta	tacctcgcca	360
gtggatccca	atccgacagg	ctcttatcgg	cggactttat	ccttccgaca	ggctgggaaa	420
agaaacgcgt	ttatctgcat	tcgatggtct	ctatagtggg	gcttatgtat	ggataaacgg	480
gcgttatatc	gctacactca	agggggcaat	aacgatgccg	agttcgatat	cagtgcggcg	540
ttcgtgcggg	acagaacaat	gtgagcatac	aagtagtccg	ctggacgggtg	cttcttattt	600
ggagggacag	gatatgttcc	atatgagcgg	attgcattcg	atgtctatct	gtacgccacg	660
cctcgctact	ccattcgggg	tcatttaata	cgagcaagtt	gcatcccgaa	tccgactata	720
ccacagggga	aatatcgtag	ccgtcgagat	ggacaacaga	gacggttcgg	ctgcacgtaa	780
gacttcggaa	tacgtctctt	ggatccccaa	gggaaagtgc	tctgggagga	acgaagcaaa	840

cccgactgtc tgtgggagaa cagaaacaaa gccttcattt tgcgaaagccg atcttcgcaa 900
tctatccctg tggac 915

(2) INFORMATION FOR SEQ ID NO:808

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 889 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...889

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:808

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gtaaaaggta tgagcatgaa agaagccgct ctggagggtga accactgggtc caccagaaaag      60
ctacatacag cccacagcgac ccacgcactc gctctccggt gcaacgggtga agaattgctct      120
cggacgttgc ggtgaggagt ccaccttacg gtggctgccc tgcgctcggg aggtattcct      180
gccagacagg tctatagccg cgctggggcac atacggagca caaccacgca tgggtggagg      240
tatggtagat ggcaaatggt acttcacgag agcctgcgaa cctgcagccg agctaaccgat      300
gcatgggttca acagctccgt tgtccgcgcc atgctgacgc atagcgggtc ttcggtcggt      360
acgaagggtcc ggaagagaag ttgttccgca cgccaactac acggagatca actgtatcga      420
caactatgcc ccgacggaaa tatcgaagtc aaagtcaccg accgctccgg tgctgtggtg      480
gaagggggccg tattcgtttc tgcattctaca actattcgga gttctatccc gtggtgacga      540
gcaatccgat gctcaaggac tggcttccct gcgtgtaggc aaaggcgaat gctcatttgg      600
gcagccaagg acggactctt cggttatgcc ctgtccaggc cgacgatcgc aaaccgctgg      660
ccatcgcaat ggacaacttc gaagcaagcc cgaatgggcc gatttcaaaa tcgtaccacc      720
tgcaggagat cccatcctac tacctgctct ccacagcaga tcagcacgaa cgacgcccgt      780
ctccgcgtga ggattccatt cgggcagcct atgaagccac attcgccaca gccagcagtc      840
tgcagcactg gctgccgaat tgggtgtgga tgcgcctgcg ctacaggca      889

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(2) INFORMATION FOR SEQ ID NO:809

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1506 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1506

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:809

acgacgtact ggccaatata gaagagcgcg acaggatcga ctccacacgg ccgtttcacc 60

tttgagacag	gctgaggatg	ctttagtgtc	ggacaatttc	atatgaccat	tccgcagcag	120
aaggcatggt	tgctggagcg	ttttcagaag	tgaccgggtc	atgattccaa	tagaaaataga	180
cagcggatcg	ggatttgctt	cggtgtgggtg	aatgctattc	gtcatgccga	gaaagcaatt	240
ggagaaaagc	tccgataagc	tttactgcct	gggcgatatt	gtacacaata	cgctgaggtc	300
gaacgggttag	gaaagaaagg	attggagacg	atcgattacg	atgtttttcc	cgactgcgtg	360
gggcaaagg	actggttgcg	gcccattggag	aactcccga	atctatcgga	tggcaggaga	420
aaatggggta	acgatcatag	agccacctgt	cctggtgtac	tccgcttgca	aaacaaaatc	480
aaatcacgat	cgaagctacg	cgcagcctcg	gcgcacaagt	cgatcatctat	ggcaaaagag	540
gcatgcgga	gtaaacgggtc	tggtcgggca	gaccgaagga	acggctatgt	catagagagc	600
gaggaggagc	tggacaaaat	agattacaca	cgctctgcat	tctcttttcc	caaacgacca	660
agagcctgga	gggattcggg	cagatctcga	cagcatcagc	acacgtatgc	agccgggtgt	720
aactttcgag	catcagatac	catctgtcgc	caagtggcca	atcgaatccc	gcataatcgga	780
gcttcgccac	tgcacacgaa	ctggtgttct	tcgtagccgg	agagaaaagc	tccacgggaa	840
ggtaactcttc	gggcattgtc	tggcagccaa	tccgcgcagt	attttatttc	ctccccggag	900
gtcatcgtgc	cggtatgtct	gggtccctctg	cggccagcat	aggcatctgc	ggagccacct	960
ctacgccccg	atggcagatg	aagagggtggc	atcgcacatc	aaggctctat	tgtaaaactcg	1020
gccgccaccg	caagtggtcg	ctatatccctc	ctttataatg	catcccctga	taggtgcgtt	1080
gggtgcgata	cgcgccacat	tgtacggagc	ggagtgtacc	aaataagcag	gactacattc	1140
ttggccgcat	cggttcggta	gctgacctgt	gaatccgctt	caggaaattg	cccgcacgca	1200
tgatgtgatc	caactgtctc	cacttccctt	atacagagtt	gtcccgggag	ggatctgaga	1260
gagaggacag	cccggagggt	gtacaactcc	cctgctccgg	ctttgccggc	ttcgggcaga	1320
acctaccggc	ccgtaagggtc	tcgatcagag	gggattcgtc	cggtattgctg	ttaggtctcc	1380
catgatcagg	atgaagggat	tgtgccggcg	gcttagtata	tattgcattt	cgttctcagc	1440
agagtggcgg	catcgtgccg	ataggcatcc	attggcgcac	acctcctctg	cgagagggga	1500
agtggc						1506

(2) INFORMATION FOR SEQ ID NO:810

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1100 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...1100

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:810

ttgacgtgta	ctgaaaaaag	ttgacagttg	ggcgggatgc	aaccagtatc	attatgggca	60
aacattttaa	caactttgaa	cgccttagca	tccttgagat	tacctctcgg	ggtcagatag	120
caaagtagcc	attgagcaga	aatatggcta	agtcattggtc	tcattcgcctc	ttggcttagt	180
aaatttggac	tcgaagtaaa	gttcatccgg	tcccaatgaa	agtgtcccaa	tccccccaga	240
gtgagtaccc	ctgaatgaaa	aagaagagtt	agagcagcta	cgtaaagaaa	atcggtcctc	300
aagagtcgtc	tcaagcgaga	agaactaggg	catcaagcct	acagctactt	gtagagttgg	360
cagaagaaac	ctacggcatt	cagatacgaa	aaactccgaa	gccaaagtgt	tcaccgttta	420
tcagagccgg	agcctaggta	tctattgctc	gactctgcga	actgcttggc	tttagccgtc	480
aggcctttta	aaacgtcatc	tcaacgattt	agcacaacat	gaggaggatg	tcctatgcat	540
agtatcatcc	aatattgttg	gcacttaaga	caagcagagc	acctacctaa	gccggcttcc	600
gagagctcat	ggtgctttgt	cagcaatact	tcggcccaag	ttcacgcttg	ggcgcgatcg	660
ctttttgcgc	ctactcagac	gccatgtatg	atgctgcgca	aacgggtctgt	gcgccctcgg	720
acaaccaact	ctcggatagg	ctctacaagt	atgaagacct	gctcaataga	gagcctaagt	780
ttgtcctcaa	agaccctggg	aactccttgt	agcagacatc	acctacgtgg	cttccaaagt	840
gggtttgcct	atctctccct	actgaccgat	gcctatagtc	gcgtatcgta	gggtattgct	900
tacatccgac	cctggaagtt	gaaggctgtt	taatgctctg	catcaagcct	ttgctttcta	960
cgatcaacat	caaattgata	gaccaatatg	attcatcata	gcgaccgagg	cattcagtat	1020
gccggtaagg	ttacaccgat	ctgttgcatg	ggcgaggctg	gcgcatcagt	atgactcaac	1080

gggagatcct ctgcataatg

1100

(2) INFORMATION FOR SEQ ID NO:811

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 391 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...391

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:811

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tcgactctnn aggatccct gataattgat ggaaaattcc acatttcttc agaaatttac      60
acntatggta actttttgat aattatagtc ttacacccgc tctttttgga tggtcatttc      120
atttcttcta aacctattta ttgatacttc tccattttct ccttgaacca cgcagcaatc      180
ggaactctgt ccacgacagg tcaagcacgg tcttgccatc ctttccctcc ctgcccacct      240
tcaaggtacc ttctcaacgg tgaacgaacg cttgtactca tccgaaaaca gtttcccgta      300
acgacaagga cttttccctg tagcagttca tcagtatgtc tctggataat ccgaccgaac      360
ggcaaatcct ttctattctg aggaactcgg c                                     391

```

(2) INFORMATION FOR SEQ ID NO:812

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2476 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2476

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:812

```

atatgattca tcatagcgac cgaggcattc agtatgccgg taagagttaa ccgatctgtt      60
gcatggggcg ggctggcgca tcagcatgac tcagacggag atcctctgca taatgcattg      120
gctgagcgga tgaacaatac gctcaagact cgtggcacat ctccctcttcg aagcagtctt      180
ttgatcaagc actccttctg tagaacaagc cgtgcgcatg tacaacgagg cgcgtccaca      240
tcaagtctag gggcgaaaac gcctatgcaa gtcattgcgc cagagtctaa aaatcgttac      300
tggaaggat cgaacattgg ccggagattg cccccgagct atacgaagga tgaatgtcag      360
acaaagagct aactttgctc gtgtcaaccg aattagactt aagggtaagg ggtgtcaacc      420
taaagtagaa ttatagaaag accagtaaac caattgtaga actatccgcg ccaactgtca      480
acttttttca tacacgtcaa gcacaattgc ggatcgaaaa aagatggttc gagaaaaaat      540
aaaactcgag ccaaaagcaa aaaaatctcg cgcgtaaaaga ttttcctttg gttcgaagtt      600

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ttgagat	ttt	aggctcggta	attctccg	tttcggccca	aaaacaacat	acgacttttc	660	
tcagta	acacg	tcacaatcaa	gggaaatcgg	gaaggatcag	tcgcccggat	agggatctgc	720	
agaagg	agga	ggcggttcgac	tccccatagt	ttgttggggc	gcggtcccat	cttcagctcc	780	
aaaagc	cgcc	ttgggctatg	tcgctatg	ggaaccatgc	tttatccaag	gtttcccgtt	840	
gagcac	ggcc	ttttggatgt	atttgttttc	agctccggca	ccttggcgat	gatcgtaagg	900	
tggttgc	cctc	caccgagatc	gatcgttatc	tgctgaaaaa	aggactaccg	atcacataga	960	
ccggtaa	acc	cggtgtgacg	gatagaatcc	catcatcgaa	aagacggcga	acgcactcag	1020	
ccctccac	cct	cttcgtctcc	ggggactccc	atcagatcgt	ttcggaacca	ttcgtttaaa	1080	
gctcatgg	at	caacttctgc	gttcgccatg	gctgaccggc	atagacaata	aatagggtat	1140	
atgcagg	ctc	ggctcattgg	ccatggaaaa	ctgtccacat	tgctgtctg	gtcgggcagc	1200	
ttggaata	aaa	aattgaactt	ccatgactca	tcggtgtg	gcg	gaaagtctga	tccaagaaac	1260
tgacaaac	tg	ttccgccc	at	ccatcaaggc	aatcagatca	tgagggtgtg	gctgtacatc	1320
ccacgata	aag	tgtaagcatt	gttctcgtca	taatagtctc	gtgcacccgg	gctccatcaa	1380	
attcgta	aac	gaagggctgt	atgaagcgtc	ccttctcatc	ctgggatgaa	agaatcccgt	1440	
ctccgaatt	g	taaagatgtc	ggtagtcgta	ctcctacgca	gaaattcacg	cgcttcgtgc	1500	
tcgtggc	cg	agaactgtgc	aatcggctaa	ggcaccaata	atcgtaagca	atagcaagcg	1560	
taacggct	ct	gcctgccgct	tctcccaaga	gtgtatggta	gggtcggttt	ccttttgtcc	1620	
tgtggca	atg	cggggtagta	gcctttctca	tcgaaaaatt	gatcgatgtg	cctttgggca	1680	
tacgcgc	cca	aggtgcgtac	gtcttctcgg	ccatcctttt	ttggctaccg	tatacgctc	1740	
attcaaatt	g	aaacccgtaa	gaccttggca	taggcatcgg	caagcatggc	tatagcatga	1800	
ttgccatt	ca	tacatggctg	tcgcctgtca	cttcgggaa	ggtaggcaac	catttctccc	1860	
tgtaagca	aaa	gccatacgaa	tgtagggaat	gacatgtc	gattccatct	cggtccaaa	1920	
agaatac	gca	ggggatgtac	agcccgatag	gtgtccca	ccaatcgtct	gtatagaaag	1980	
gaatgccc	ct	atccggatgc	acagcatgac	ttcggcactg	tagaaatgac	catcctccga	2040	
gatattg	atc	atccgttcta	tgtacgataa	aggctgggtg	agaataacctg	tcgctgaaga	2100	
atcgta	act	ctcgatctgc	actttgcccc	gtgttttgtt	ccattcgttc	cgccctctt	2160	
ggacacc	act	tccacgttgt	aagcctgtat	ttcctgacga	agattttttt	ggcttgtgcc	2220	
acactgat	at	aggaaatacc	atagcgaagg	aagaatccgt	tccggccaga	tcgtagttca	2280	
gcacgag	agt	tttgcccgtt	acctgccctt	attccagatg	tactcgcctt	tttccgaacg	2340	
gcgagc	gtac	gtacaggctg	ctgctccgtc	tccatataga	caaatactcg	cgtagtctcc	2400	
taagata	gcg	atagccggat	atgacattac	cttcggcagt	caattcccct	tctcagagt	2460	
aacaacg	ag	g	taatgc				2476	

(2) INFORMATION FOR SEQ ID NO:813

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 686 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...686

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:813

acagccg	ctg	catagac	agg	accggcc	caga	cagccgc	gac	cggttc	ctg	caaccgc	att	60
cacgca	agtc	atcgtct	atg	tagcgag	aga	gcagcat	ggg	aagaaat	tag	aacatgc	tta	120
ctacac	gttt	caaggct	tgg	aggaatt	ctc	cacttcc	ctcc	tcggtat	tgt	agagag	caaaa	180
ggaggc	gcga	gccgtgc	att	gagtc	ccatg	ctttc	gagta	gcggttc	ggc	acagtga	tgt	240
ccggtc	ggat	ggctata	ccc	agccgat	cga	gcagcat	gcc	gaggtc	atag	ggataat	gtc	300
ccctata	aag	aaagag	agca	caccgct	cct	gtgttc	ggct	tctcgat	gat	acgggc	attg	360
gggaa	agtc	tcacgc	cttc	ggtggcc	atg	cgaggag	tgt	gtcttc	atgt	gcggct	atgg	420
cttccaa	acc	caatc	cttcg	agtagtc	gag	agctgtg	gcc	aaagcc	gtg	agccga	tata	480
gtccgg	cgtg	cggttc	cgaa	cttatag	ggc	aattcgt	tgt	aagtgg	tctt	ttcgaat	gta	540
ccttgg	cgat	catctc	tccg	ccaccgt	ggg	aggggg	atc	ttcttca	aca	ctnccg	ctttg	600
ccatca	atac	gcctatt	cct	gtgggtg	ccgt	agacttt	tgg	cgggaga	agg	cgtagaa	atc	660

cgttccaact tccgacatct accggc

686

(2) INFORMATION FOR SEQ ID NO:814

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 713 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...713

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:814

aaatccacta	cgtattcttc	tgtaatgcaa	atgccgttta	cacgaatacc	tcgcgaaaat	60
ccaccaaatg	aggagatgta	aacaagccta	cccgcatacg	gcaacttgta	agatagcagc	120
cagtgtagag	gcggtagagc	ctttgcctta	gtaccggcca	catgtatcgt	tcggtaagcc	180
ttgtggggat	gtcccacacg	cggctctatgg	tctctacggg	accgagcccg	ggtttatatg	240
cactgccctt	tggtgttggg	agacaggggt	agcggtaaag	agataccgga	tagctcttcg	300
taagtcatca	tgccctgccg	atgatgggtc	gctctcggtc	gggccaacgg	aaacgatagc	360
gataccgact	cccaattctt	tttccaagaa	gggatatagt	cgctaaattc	tttggggaaa	420
tcagcctcgg	aaaccacatt	ttcattgact	gctgcccaacc	ggggagttcc	ttgtaaacgg	480
gcgttacccc	tctgtcagat	ggaaggggaa	attgcgtgtc	tccttgccgt	ctatctcgtt	540
gccacgcaag	ccttgatcgt	ggggaaaaga	tccatgacat	cgcttttctc	atgatcagct	600
tggtcacacc	attcaacata	atggtgtagc	gcaaggcacg	aggtctatcc	agccgcaccg	660
gcgtttgcgt	cccgctcacg	agccgattcg	cgttccaact	tacagagctt	ggc	713

(2) INFORMATION FOR SEQ ID NO:815

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 5969 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...5969

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:815

gctgaaaaag	gccgattcgg	gagggtgataa	aacaaaggca	cccaccagtc	tatagggaac	60
tcgatgggtg	ccttgactct	ttgaggaggc	tatggaaggt	tattcctctt	tatttgcat	120
agggatattc	ttgctttgtc	cgaacaagcg	ggcggtatg	acggatacgg	gcgggatgga	180
accggcctga	tgagccggga	gtatatgtgg	catattcatt	gttatttggt	cgtaaactgt	240
ttgtcatatc	gttctatatc	aatcctataa	gcacttttag	caaagagttt	tatatctcga	300

taggagcatt	cttggccggc	aaatatagta	aaaaccatca	acctggggaa	tcgaatttca	360
catcgcaaat	cttctccact	tccgtcggct	caggactatt	tgtttccaga	agaattttca	420
ctgtcaggaa	aaaagaatcg	gttattttccg	tccgattatt	tggtcgttat	ggaattatta	480
ctactttttgc	cctgggtaag	tcctatacgg	catgtccct	ttgattcccc	cagggttgt	540
cgcagcaagg	gtattaggtc	gtagcggcgc	gatatagcca	gcttaccctc	cgcctcttta	600
gctcagttgg	ccagagcacg	tgattttgtaa	tctcgggtcg	ttggttcgaa	tccgacaaga	660
ggctcgaaaa	gcattgcacc	gattcttcag	cttggtatga	gaagtcggtg	cagtcttttt	720
ttactgttcc	taatctttca	acaccttggg	tccgttccgg	atttctaaag	ggctgaaagg	780
aaaacgcagt	ttttattgcc	ttcgtttgtt	gcgataatc	cttatttttg	tatcatttaa	840
gggataataa	agttcatgtc	aaggaaaaac	cataccact	attgttgctc	tggatgacag	900
ctctccttct	gacgtatgt	ttgcctctgg	aggccaacgg	aatcgcgct	ttaccgtggt	960
tatcgatgcc	cggacacgga	gacatgattc	gggggcagtc	ggtaatggtt	tacgagagaa	1020
agacatcaat	tggcgtggc	tttgctgtgt	ggacagctga	tcaagagcaa	gcactcgggtg	1080
tgaaagtgtc	ttatacccg	gagaaggatt	tcttcgttac	cctgatggac	gtgccgaata	1140
tgccaataaa	aacaatgccg	acctttttat	cagtatcatg	tcaattcgca	agagcgaggt	1200
catggaggct	atggtaccga	gaccttgtaa	tgggacatga	acgtaacagt	aaaaatatgg	1260
cggtagtcca	gcgtagaatg	ccgtcatatt	gatggagaaa	gactatagga	ccgtttataa	1320
aggtttgacc	cccgttctgc	cgagagttat	atcatgttcg	aactgatgca	gatacgtatc	1380
aggatcagag	catcaaacg	gccaacaga	tccaaaagg	attgtggcca	aggggcgtca	1440
tgataggggg	gtgaagctcg	gcaatttggc	gtactcgtgt	tttctgccat	gccgagcgtt	1500
ctcgtcgagc	tgggctttaa	agcaatccgg	cggaggctcg	ttatttgggg	tcggaagccg	1560
ggcgtgacaa	ttggcttcgg	ctatcgcccc	aggatttgcc	cgatacaaag	aggattagac	1620
agacgttccg	gtaagggtgc	cgagccccga	ccacaagcta	ccgaggagag	gataagggtt	1680
aagtcgaacc	agaagacaat	ggtatttctt	cgggtgcagat	atgtctgacg	gcaaggaaaag	1740
tatagctccc	aagggcatg	ctgtaagccg	gatgaggtg	ctcattccgc	gaagaaaacc	1800
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(2) INFORMATION FOR SEQ ID NO:816

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 6272 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...6272

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:816

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(2) INFORMATION FOR SEQ ID NO:817

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2263 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2263

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:817

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ccgcttcacg	ggaaatacgg	gcaatggatc	ttagtgcagt	tatagggatg	ccaaagggtg	960
ttgcgatcca	aacgcagcat	tcgtcaatgg	tcatagctta	cctcccagtc	tgtatcgtaa	1020
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ggtgaggaga	tcgcccgtga	tggtctgcat	gatacctata	tatatagttt	gcgctgaacg	1140
gcagggtcta	gttgtgccc	tcctcccga	aagcgagaaa	agctcgagga	ttgatgagcc	1200
ggaacagtgc	cacagtcgtg	aggtatcctc	ttcgttaga	ggcagagtc	tctccagcgg	1260
agtgcggggg	atcgctgcag	gatattgatc	gggatggagt	agacattgat	gctgtgcagg	1320

tagaagcaaa	ttcgatccgc	tgctccatcg	tctcccccat	gccgatgatt	ccccactgca	1380
tacacgcatt	cccacacggc	gtgcagctcg	aatgggtggcg	acttttcgtc	ctgcgtgtgc	1440
gtactgcaca	gggaggggaa	gaaactcggg	ccgtctccat	attgcagtg	taggtgggtca	1500
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tttgatgtcg	ttcgttgctt	gatggcacga	taactttcgg	ccatctgtcg	tatctcgtca	1620
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agcggcctgc	tcggcacaaa	ccgcggccga	aagaatccgt	atttctctat	cgaagcggca	1740
taatggcggc	tttgagcaca	ccattacagt	cttcgggaca	gttgccgctc	ttggcgttga	1800
tgatggagca	ggttcgaact	tatcgcccat	gaaataccgg	gtgatccgat	gtgcagcctc	1860
gtgagtgtct	ccttatcggc	agaggaggcc	agcagaagg	cttcctcaag	gttagttcgc	1920
caccgtttat	cagtctgttt	tcgatcgtct	gaatcatata	gggaacggag	cagatccttt	1980
cctgtctgca	tcgcgcgaca	aagtagaaaa	agctccggca	atagaaacta	atcggccac	2040
agccacgacg	ctattatctt	caagcaaaaa	acgacagagg	ctgccccatc	gagatgagac	2100
agcctccgga	agcgtcggcc	ttaacagacg	tatattactt	cgctacccgc	tccagcactt	2160
aaccatggag	agcataacga	gcatggacaa	tgcacatgca	caggtaatac	aatccatgta	2220
gcagagatag	aaagcgattc	gtacagaatc	ataccacgaa	cag		2263

(2) INFORMATION FOR SEQ ID NO:818

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2159 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2159

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:818

ttgcctcgca	ataccagcgt	cttgaacacc	tgctcgacat	cctcgcccac	tgctctgcca	60
catggacggc	cgagagggtc	ctctcgtecg	gtcgtaggg	atcagttcgt	acgttatatg	120
cgccgcatcc	agaaggcgcg	ccacattgtc	ttgggcatct	ttccggtcac	ttccggcgaa	180
aacgattgag	gataaacgga	taacggcata	gccgaagccc	accacaaaga	gccatccgag	240
tacagatccc	agaccttagt	cccttcgtgt	ccgattttca	tcagcccga	ggcacgaaag	300
tcagacatat	cagcaaggca	ctccacgagc	cgttttctgtc	cataagcctg	cataacgcac	360
agccgtggcc	cgatcgatac	gcccattgtt	gtgcccataa	agacggcact	ctgctctgcc	420
agagcgaaac	aaaatgccac	gtccactgta	tatggaagaa	aagctccaaa	ccggcagggtc	480
tgctttccga	ttgaaatcct	ccagtagcat	gccgggtgaaa	gcagctgcga	aaatcaggac	540
cccaaccaat	agagatagaa	acggggcctc	aacccttgcc	tcttgctgat	cgagtttttt	600
cgtgagatgg	ttccttcata	gcttctcgta	tgacaatttc	ggttcgattt	gtttaatacc	660
aacgcctccc	gtgggtatca	tgccctcgag	acgatagccc	tgcgactctt	ataagatcaa	720
ttcggtcaga	gagccaagg	agggagtgg	gcaaaggcac	tctccagcgt	gcattgtccg	780
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ccgccggata	cgggttcgtc	tatgtagcgg	cgaaaaatgc	ttctatgtct	gtcgtgtcca	960
gaattttctt	ccagggtttg	cttcccagtc	gccgaagttc	atctccttca	gccggtcgtc	1020
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taaagaccgc	ctcgggatcg	aggcctttga	gacgggcaca	agccgcccag	cctcctcttc	1140
gaaggtgtct	cgaacgtcca	catcgggtga	tcctgatagt	gctcattgcc	attgaacagc	1200
accgaggtgt	ggcgcatcag	atatatttca	tccagtggatt	attaggggat	cggtcagaaa	1260
aaagccttcc	gaatcgacaa	agatagtaga	aagagagtgc	atctgaaaac	agatcattcg	1320
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gctgattggc	ttagtaggtg	agactttctt	aagagaccta	tcggcactac	aggaagttca	1680
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ccatcaatca	atcgaatgac	agcttttggg	caatatatta	tgcataat	gattcgcggt	1860
taaggaaaag	tgcataat	tgcgattgtg	gtatttcttt	cggtttctat	ggaattttgt	1920
ctcccaagaa	gactttataa	tgcataaata	cagaaggggt	ctacacagta	aaatcatatt	1980
ctaatttcat	caaaatgaaa	aacttgaaca	gtttgtttcg	attgctcttt	gctcttcctt	2040
attaggagga	atggcattgc	gcagcagaca	gagttgggac	gcaatccgaa	tgtgagattg	2100
ctcgaatcac	tcagcaatcg	gtgacaaagg	ttcagttccg	tatggacaac	ctcaagtca	2159

(2) INFORMATION FOR SEQ ID NO:819

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3694 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3694

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:819

gcagagcggt	tctatcctct	gtgaatgcga	tcgcagcggt	tcggaagagt	agtctgaccg	60
ttgctaccca	agaaccagaa	gctatagcat	ctgtctctcg	atcaagcatc	gttcgcgcag	120
atatacgacc	gatatgacga	ggtcataatg	tcgttctgcc	cgatcagcga	aaaagcggag	180
aaaaaaaaatc	gacgataaca	gccggtagag	actggtgcat	gggagtttca	ttgaactctt	240
ttgctcagag	ctgattctta	gtgccttttg	gaaagatcaa	acctccggtg	tatgacatcg	300
agcaaacaga	aatttcccca	agtttccatt	agagaagtac	tccttcctcg	tcaaattaggc	360
gagaaataag	aaacgattgt	cggctgtttc	ttctccctgc	acgatgcagg	acgcgattgt	420
cagctgattc	ttgctccctg	ccgatgcagg	acgcgattgt	cagctgattc	ttgctccctg	480
cacgatgcag	acgcgattgt	cagctgattc	ttgcttctcg	cacgatgcag	gacgcgattt	540
cagctgattc	tgctcccatc	aatgcgctaa	ctatcagcta	tttgcaacat	tttataggac	600
tttcattgaa	gtcttttgcc	gcagagctga	ttcttaatgt	tttccaggaa	agatcaaacc	660
tcaagatatg	gctaccaagc	aaacagaatt	tccccaaagt	tccatcagag	gtataacttga	720
gctttgaaga	gattgatgaa	atacttccct	tcttcgtcaa	atcaatgctt	gtgtctgtct	780
tgatgatatg	aggaggtgga	aggttattgt	gcaacggctc	ccggtaagga	gaaccgttcg	840
aaagacctct	tgcaaatacc	gactgcaaac	cgccgattat	acattataat	tatagcctta	900
ggccaggaag	taaaccatca	gacctacgac	cccacataga	agagagcata	aggaatggca	960
gaacggagga	tgctgccttc	tcgcccgtgt	gggttgcaaga	tgccgtagca	atggcaatgc	1020
tctgtggcga	atgatctttc	ctcccgtagc	tcctgccgta	ttggctgcag	ccagccacgg	1080
gcatccacac	cgatctgatg	agctactcct	gcctgcaact	tgccgaaagg	atattggacg	1140
aagtatcgct	acctgtgaca	aaggttcccta	cggcactatg	agcggagcaa	acaggggata	1200
gagcgttccg	gtggcctcgg	ccaatccgta	gcgatgacaa	gtatcattcc	gctataagtc	1260
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aaagctccga	ggaagagcat	aagacctgca	ttgctaagcc	accgaaattg	aacgtcttac	1440
catcatggta	gataggcaga	gctatttttg	taccaaattg	gacttgagga	aatcgcttac	1500
gggaccatc	accgggctgc	cagcacaatg	aagaatagaa	taaagagata	gacgctccat	1560
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gagaacccgg	gtttaaatcc	cagactgata	ggatggctgc	cggatatagct	actgccgtac	2040

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gcttttgctt	ggcttatgcc	ggtaaattgt	ttcttgatga	tctcgatttt	accggatcga	2160
gtagtacatt	atagctgtat	atagccatca	aaatgataat	caaaaaggga	agatagcctt	2220
gagggcacct	tccacaaaag	cccatccgac	accttccggg	taaaatctgt	aggggcaa	2280
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gctcgttctc	tgaagaacg	cttggaatct	gaaggttaac	ccctattttg	gcagaaaacg	3060
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ccgtgaggcc	gtcaagaacg	ctatgctccg	aattttcagg	atgcatggct	gcttgagcgt	3180
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gcccggacag	attggtggat	tgactacaca	tgcgacgccg	atatgatcgg	ttggtgaaag	3300
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cgctaatttt	catggtatac	tcttcattcc	gaagtaaagg	gtatcaccga	actgcacaag	3420
gatcaggaca	cattcttttg	cgtgtagggt	cgggtatggt	atgggacgac	ttcgctcgta	3480
tgccgtggag	aataactatt	atggtataga	gaacctctct	ctcattccgg	ccaagtggga	3540
gcacgcggctg	tccaaaacat	cggagcctat	ggagtagagt	atctcagctg	atcgaggcgg	3600
ttcatgctcg	tcattaccga	acaggaaatc	ccgtgtattt	cgcaatgagg	actgcagata	3660
cgcatacaga	tacagatctt	caaagaaccc	ggac			3694

(2) INFORMATION FOR SEQ ID NO:820

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3589 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...3589

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:820

gaaaaactcc	aaaatgctcg	ttatccaaac	caattaatcg	ggcgaatcat	tagaatctca	60
cacatagggc	attttataaa	gaggggtgtg	cagaacgtag	ttggacacac	cctcttctct	120
tgtttcagaa	aggtagaggt	gcggttttcg	cggatagggt	cgagtgggtc	tgtaaagggtg	180
gatatgtttg	tatcacggct	gtagaactcg	ataccgcggc	ctctgctgtt	ttgccccctc	240
tccttcttcc	ggcacttcgg	gtttgccgcg	atcctcaagt	actcattccg	tttttccatg	300
ataaaacatc	tttttatcga	tcttgacgat	acgctttggg	acattatcat	aataataaga	360
gtagcctcga	agagtgtgat	catacacatg	ccgggataga	tatttcgact	cgttcgaaac	420
tttcttccagt	atatatttgc	ccacaatgaa	gccctttggt	ctgagtatcg	gtatgggcaa	480
atcgataagc	gacccttact	ttggagcgtt	tcagaagacc	tttcaccgga	tatctcactt	540
gtctgatgaa	caaatactag	catggaatgc	agagtttctg	tccattacgg	gcggaaaact	600
cgactttgcc	ctcatgctct	ggaagtgtatg	gagtatcgca	ccgttactac	aaggtttata	660
tccttagcaa	cggttttcga	gaaatcagca	tgccaaactg	accaatagtg	gtttggcacc	720
ctatattgac	cgagtattct	atccgaagat	gcgggtatca	acaagccaaa	caaaaagata	780
ttcgcttcgc	actcgtcaaa	gccaaagcca	gaaagacgga	aagcatcatg	atagagatag	840
ctgggaagcc	gatatagtcg	gggcggccaa	tgccggtctg	gctctgtctg	gtataacccg	900

aacagacata	tcttacctga	tgacgggtgta	cagcaccccat	gcatattatt	tcctcttttgt	960
ccgagctgat	gcagatatcc	gactctcttg	cgccgttttg	ttattgacaa	agaggggcaca	1020
aacctcatcc	cggttattcg	gatgcataac	ggtacacctt	tcttatcacc	tgtttggtatc	1080
cttctccaag	caggttttct	tttttaacgt	gaggtcgatg	taagcgaatg	gtgtcgattc	1140
tcatgagaac	cgccttatcg	atcaagctct	tgttgggcat	tgactataac	cgaatcagaa	1200
aatgaaaggg	aaaaagtttg	acgtccattg	gatgtcgaag	cctctcgaag	ctgaaatctc	1260
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cggctcccgg	agcggaactc	tacggctcgg	tcgctacgct	gtagagcgta	cctcgccgag	1500
ctctacagcg	tagctcgaaa	gctgtacggg	atagcccgtt	atcctctacg	gtgtaccgcc	1560
atctgcctgt	ggtatagccc	atcttctctg	acggactgca	acattcggtc	aaaaaagaat	1620
ccgaatttca	atgttggttc	gatccgggca	gaagcaggat	tgcccctata	caattgcctg	1680
aacggaataa	cctataactc	ccaagatctt	agtgttaacc	cgctaatacg	ggaacgaata	1740
cattggcggt	ttcttacgcc	gaacgggggt	gtttatggtg	tgctcttcg	atcgaggtgt	1800
actccaccta	cattagttct	cgggaaggga	caaagccggc	caatcacgtt	tctaatacaag	1860
gtctaccaa	cgatcggggc	tatgccgtgc	tgccggagat	atgcgttggt	tggtgaaat	1920
gcttgagcc	aaaaaaaccg	cgatgtgctg	agagtggcga	aggatgaagt	gcttcgagaa	1980
tgagatgaca	gcgaggatcg	atcatggcta	ttttcggcgg	gcataacttc	cccagaggag	2040
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catccatccc	ttggtggcta	ccggcctgac	ttgcacgaac	agtaagcgtg	gcattggcag	2160
taatactcct	tgctctaccc	acggcaaaaag	acttccctcca	tctattgagc	cggctgtccg	2220
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agggatttgc	tgatctactg	ttgagaatac	ggatatagcc	accggaagca	gccagaccgg	3180
agccttcgta	ttggtgacca	tacagccctc	caaaagcaat	tttggggtgg	tgactcctta	3240
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cacgactctc	ttcagagaaa	agaataccgc	ccactgtccg	ggaacgaggg	tataaggtag	3360
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tccgccatta	gcgaccccg	accttgatgt	gggccttatt	ggccatcagc	agacggcatc	3480
ggcaggtaaa	gtaagggtag	cacctgctg	aacgacaagg	ctgtcgagag	caagggtgga	3540
cgttgtgctc	caaatatcgg	atcccgatcg	ataaccaagc	cggtcactt		3589

(2) INFORMATION FOR SEQ ID NO:821

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2955 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2955

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:821

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gaatcgggag	tagcccgatg	gcatatatac	aactacttcg	agcacaagga	cagcctcttc	2880
agggctgtgc	tcaacctctc	ttggatgaat	tcgggcggat	aatgggaggt	cacaacagtg	2940
gcaccattat	ggacg					2955

(2) INFORMATION FOR SEQ ID NO:822

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 861 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...861

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:822

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aaggctttgc aagagtatgc cacggcatac aaactgatga acagttgtcc gatcgatggc      120
actggctgaa ttctgtatc ccgatggacg tatcaatctc aaacaaggta acgaaaggct      180
ctaccagcat ttcattcttt ggccgaaggg actgcgaaag aaattaattc gacttcacat      240
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cctcgaagca ttctgtctga gcaagacggt gacgcacagc atgccattgc gcacaaggct      360
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ttttgccctt tcatctcgat tcttttgatt tctgttctga catatgcata ccgtcaggga      540
agaagcataa caagctgac aaagagacgg ataaacttcg ctccggcttt tcaccgggat      600
tacacacgaa ttctgtacgc ctatcacctg catacaagtt tgaatgagaa aatgagttca      660
agtctgacgc tccaagcatc ggacagaccg agctgcacaa gataatagac agacagagta      720
gccatattgt gaattggtga accagctgtt ggatattttg aagatcagaa gcgagtatcc      780
acgccgaatg gcgcatggcg acatcgtctc ttcgtacaga tctcatcgat cgtgcacata      840
cgcacaggct caagacatac c

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(2) INFORMATION FOR SEQ ID NO:823

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 4324 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...4324

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:823

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gaagcactcg aacgggtgcc gaatccgagt ttctttccgg gtctgtggtt cagtttattc      780
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tttc						4324

(2) INFORMATION FOR SEQ ID NO:824

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2333 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2333

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:824

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ccctgaatga	catcctccac	ctgtaggcag	agagaatgtc	cgctggggat	cct	2333

(2) INFORMATION FOR SEQ ID NO:825

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 999 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...999

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:825

```

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cgacaagaga atacagcgaa cggataagat gaatatgaac ttcttccttg acataacatc      480
tggttggtgc gcaaactctt tgtttataaa gatggattaa atttaggaac aaagtactta      540
aacatatcac tgacgacgag aaaaagagga gggtaaagct attcttagag caactcgaat      600
aatgaatgac tacgcaaacc aagctcgtaa tgcagttgtg gtgagccaga aaaagtattg      660
atcgtttttg atgatagact gagcagaaag cctgtcgtta ctataccgta ggtgaaaagg      720
agcagtgaaa cattaaaaag aacttgatca gtaccaagta aaatatattg taggggatga      780
tgctcagatt atagcgtagc cgatgcttat cgtgatgcga tgaattacct tgaaaggcaa      840
cacttgctga ttttgacagag ggcgaaagag ataatgactt ttcagaagcc ttcgagtgcg      900
agggaaaaaga acctcaagag aaaaaatcta aaaagggaaa gacaaggcca cttctgctca      960
gaatctcttt gcagaacacc gatgatcaat aaagaatcg      999

```

(2) INFORMATION FOR SEQ ID NO:826

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 671 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...671

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:826

```

tacgcagttg gttttcaccc gtgattcggc acctgccgaa ctatgcgacg cgccgaagac      60
ttgggacgtg agtgggtgat ccgtgccacg ggcaccgtat ggagcgctcc agcaaaaatc      120
cgaatatccc caccggcgat atagagaagc agtcggagaa atggatgtgc tgaaccgctc      180
cgaagtgccg cttttcccat cgaagacgag accgacggag gcgatgacct ccgcatgaaa      240
tategtacct cgacctgcgc cgccactgcg tgcgctccaa tatggaactg cgccccggat      300
ggctctggag gtgaggaagt atctcgacgg cgagggattc ctcaagtaga gacccccatg      360
ctgatcaagt ccacgcggga gggcgccgcg gatttgctgt accctctcgg atgaatcccc      420
gccagttcta cgtctctccc cgctgcctca gaccttcaag cagctactga tggtaagcgg      480
cttcgatcgc atttccagat cgtgaagtgc ttccgcgacg aagaccnccg cgccgaccgc      540
agcctgagtt tacgcagatc gactggcaan atgagctttc gtggagcaga agatgtgctg      600
tccaccttcg aaggtatggc caagcacctc ttccgtacat ccgtcacgtg gagatttcgg      660
aagccttccc c

```

(2) INFORMATION FOR SEQ ID NO:827

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 833 base pairs
- (B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...833

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:827

gccggcatgt	aacagaaaag	ctgttggata	aactggcaaa	gtattcattt	tctataattc	60
atgtcaggat	atcccaagag	aaaaggcaag	actctatgag	atcaaatatg	tagaaacaga	120
acatggcgca	atagtttggt	gtactggcaa	tcaaagaaaa	tctcttactg	gaaacagggt	180
tggatggtga	aggtctatgt	ttggctttca	gaagattggt	gacttcctaa	tggctgatgc	240
atthttcaaaa	gcaaaatgaa	agatagtgcg	aaagtagatt	ttgtcataga	gaagcagaat	300
gtcagcaata	tcccctgtac	aagcgttttc	tcgtggcctt	atttcggagt	ggtccttat	360
gccagagttt	ttggataggg	atttacttgt	accagggaga	cgttgttaga	tattttgttg	420
gaaagtctgc	attatcgatc	agaaacaata	ggttgggtatt	cagttggatg	gtaaaagaac	480
aggttttctc	ttaaggatat	tgcgtgattt	tataaacata	ttgccggaag	atgtatttct	540
atggctcaca	gtaggttgat	gaatgcatca	ttggttaata	gagataagaa	tggacaacgt	600
ctgtgaattc	tatatatgac	tccttcttat	ctagtaagta	gatgattttc	ttgaaattga	660
aatcacagag	aataacaatc	ggaaattcta	atacttctag	gatggatgtg	tgtatcaacg	720
catcctttta	tcanggtaga	gccgttgaga	aaattgggtg	atttggttga	taaggcacca	780
gagtttacca	gaagcttacg	tttggttgct	tcatgccatg	atatgtatgt	ggg	833

(2) INFORMATION FOR SEQ ID NO:828

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 3378 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...3378

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:828

gcacattgct	gacgtgggct	atcgaaacga	ttttggtacg	ttcgttcaga	gagaccggaa	60
atgctccaca	tccagttcgc	ccgattccgt	caaccggaca	ctctgagccg	agcaccggta	120
cgttcggcca	aaagtgtgca	tgggacgtat	tcgaatgggt	ttcgagggtg	ctgatgataa	180
tctcatcgcc	ggagcgacga	aagcttgccc	gaacgaagag	gccaccagat	tgattgcctc	240
tgtggggccg	gcgtaaagag	cacctctttg	gggtcttccg	ctccgatgta	gcggctatcc	300
gcttgcgagc	atthttcgtg	tgtccgtag	ccacctgact	cagtgggtgta	cgccgcgggtg	360
gatattggca	ttgaatgtgc	ggtaggctcg	ttgatttgggt	ctaataccgc	tatgggtttc	420
tgtgtcgtgg	cggcattgtc	cgatagatga	gaggtttacc	gtgtaccg	gtatggagga	480
tggggaagtc	tccctgattt	tttgaatgtc	gtacataatg	agctatacta	tatactatga	540
tgtgacctct	tcggggcgga	gggaggagag	agcctaccac	ttctcgcgtg	aagaacctcc	600
gaggtttcct	tgcgcttctt	ggccctgtgc	ggatcgggga	atagccgagc	atgatgttca	660

tgactacgcg	gcgtccggag	ggaatgccag	tatttcgcgg	atcttggett	cgtttaccca	720
gcctatgatg	cagctccgag	accttcgggt	gtggctgcca	gcgtgatgtg	tgcggcggct	780
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gttggettct	tcttcgacta	atacgatgtg	tacgggagcc	tgcgcgtaaa	gtgattcata	900
cccaataacc	gtgacgatga	ggcttcagcc	attgtctgcg	agtgtcggga	tcgggtgacga	960
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ttccccacaa	tgtcgaattc	cagattgacc	acactaccga	gacaatgcgg	cagaagttcg	1200
tatggtcgcg	agtatagggg	atgatgccac	acggaagttg	ttcatgccgg	agtcgcatac	1260
ggtcaggctc	acgcattgac	gcatacggat	cctttctcca	cggtcataata	gccttggcga	1320
gcctctcctt	gtcgagcttg	tattcgaacg	aatagtagtg	actgccgccg	gctcttccac	1380
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cccacatcat	tgcttcgttc	cagattgacg	gatcgccctat	ttggaggagt	ccgagggttg	1500
aacggttcgag	ggttttcgcga	tggcagtcac	ggtataggtg	gtgtccgtct	tgctcgctac	1560
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agaaaaatata	gtgatggtaa	gggaatatgc	acaaggcaga	tcaggatgga	gtagcttttt	1800
tcaggacacg	tcaacgtcac	accaaacttt	tcctattgta	cgctccgaaa	aacgtagggc	1860
gaaaaattttt	cgttttcgtg	tgggaagcaa	aaaatttttcg	ctccaaaaca	gaaaattctc	1920
acgccacatt	ttcagaaaac	acgcgccaca	atccgaccgt	tttgggttcgt	atttcggcag	1980
ccggcaggct	gtaggcattc	atctgtaggg	caatggtttg	gcataaatgc	ctccaaaatg	2040
gatgcagctt	gtcgcattga	atccacctta	atgatccgga	taaagccgcc	gattaggatt	2100
aacgccgaga	ctgcaaagca	aaattcgaat	taacggctcc	cggctgccaa	cccattccgg	2160
gacaggccac	tgtttttctg	tttgctgctt	ttttccgtac	tttgactgta	ttttggaaca	2220
aaaaatattc	cgttggcatg	caactaaaga	atttcatcat	aaatatcccg	tcctcttcca	2280
cctgattttg	atgacttttg	cttagggctt	atcctcatgg	gtatcttgtt	cggactggat	2340
atttacacga	gaacgacagc	tctatcgtga	tgccggagtt	gcgtggcaaa	gacttgaagg	2400
agcagagcgt	ttgctgtcga	gccataatct	tcgctacgaa	cttgctcgatt	cgtttatgac	2460
aaatccttgg	ctccgggtgt	cgtagtagaa	atggttccaa	gagcggcaat	accgtcaaac	2520
cggggcggat	catttttctt	tcgatcaagc	gagatcggca	cgggaaggga	tcgtccctga	2580
tctgaaagat	atgtccgccg	ccaagetctg	gccatcctga	aaggattggg	cttcgaacaa	2640
gtcacaagcg	atacatctca	ggcgattttg	tcaatctgac	agacggagtc	gaactgccga	2700
cggccggaat	gtacttgccg	gtactcgctt	gcgataacg	actcgttggt	gctacgggtg	2760
atcaacggct	atgcgccgct	tcctgctgat	tcgcaactgat	cgacgaatcg	atcacctacg	2820
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atcgggtata	cttatggagg	aagaacttca	gtaccggatg	actcccagaga	tgccggagct	2940
ttcgacgaag	acgatgcaga	ggacatctcg	gacggcggac	tcgacccggg	gaagaggaca	3000
gatacgaaca	tttccgcact	gtagcagatc	cgggacagca	cttattcgta	tcgacaaaatt	3060
ccttgtcgcg	aggatgaaca	acgccaccgc	agccgtatcc	aacaagcggc	tgaagccggg	3120
gccatattcg	tcaatgccga	ccggtaaaga	gcaactaccg	gatcaaaccg	ggcgatgtgg	3180
tcacgtggaa	ctcctccggc	cacgacggga	attggagatc	attcccgaag	atatccactc	3240
gatatagtgt	atgaagacga	tgtactgctc	gtgatcaata	agctgccgga	ttagtgggtac	3300
accccgcca	tggcaattac	acgggtacac	tgtcaatgca	ctggcctact	acctccgaga	3360
ggatcctgaa	tacgaccc					3378

(2) INFORMATION FOR SEQ ID NO:829

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4863 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...4863

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:829

cgccgacagc	aacgacgaac	tgatgaatct	ctcccgggag	ataatgcccc	actgacccgt	60
ctcagtagcg	atatagccct	gagcgaaccc	ttgttcgtcg	catccgaacc	gtatgggaga	120
gcgatgagaa	agaaaagctc	tcggatgaga	aaaacgcctt	ctgtataatt	gctatcgggg	180
ctttgtcgat	agcggacact	actccccaca	gagaaaaaag	accggctgcg	taccctgtcc	240
gaagaatgag	tatggcctca	ttgacattcg	gacagaatgt	gctcaaggac	gagaacgcta	300
caaactccac	ctcagcgatc	cggcggtctg	ggccgggatg	cccagacggc	tctcgctctc	360
gcttcggaga	aagcccggcg	aaagggctat	acgagggttg	gcttttcgac	ctttctgctc	420
cgagctactt	tgcttttatg	agcattgtcc	cgatgggaac	ctgcgcggcg	agatgtatga	480
agcgaaaatg	gtgtcggctt	cgtagacaat	gagtataaca	acgaagctct	gatccgtaga	540
tggtaaacgg	ccgtctcgag	gaggcacaac	tcttggttta	cgatacctcg	cccactttgc	600
tcttcatgac	aggatggcca	agaaccccaa	ggcagtcaag	aactactgga	caaactactg	660
gatgcataca	agcccaaagc	gacagagaat	tggagatgat	ccgcaaattg	gcttgccgac	720
aagacatccg	aagtcataac	ttcacgatac	aaccatggga	ttgggcatac	ttctcggaac	780
agtaaaacag	gcccactacg	atctggacga	tgagatgatg	cgcccgtact	tcgattaggg	840
cgatcacac	gtggtatctt	cggcttgccc	aaccgactgt	acgacttcac	ttctccgaac	900
ggacggatgt	gccggtctat	catccggatg	taagggtgtac	gaagtatcgg	acgaagacgg	960
ctcttatatc	ggtctgctct	cacggatttc	tttccacgcg	aaggcaagca	aacggagcat	1020
ggatgaacac	ctccgggacc	agtccgaaca	tcagcaccgc	cacatcatca	tcgtgatgac	1080
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atatctaccc	attcgatccc	aaatatcgtc	catccggcag	ggcgatcgca	tttgaagtgt	3180
taacaacata	taggcctgat	gatgctccgt	ccggaataag	cccgaattaa	tgtgtagaga	3240
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gacggcacag	cgtggcacag	ggcatatact	gggagcaagg	cgatgattgg	aggagcacia	3420
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cgggccatcg	ttgatcttca	atcatcgctg	tagataagat	tggtggctat	cgtagccgtg	3960
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aggagagagg	tagaagagaa	cttctcattg	ggcttatagt	ccgcaccaat	accgagagtg	4260
agaatgcagg	agcgaagaaa	ttagagatat	gcttgactcc	tgtcaagtga	tcgagggctt	4320
ctcatatcct	ttggcatact	gtgagaggaa	agtgaaaagc	gacttccgta	ccaatgtttg	4380
ccgatctcat	agccggcctt	cgtgaagagt	cgatcttgtc	tacacttttg	ttccacttgt	4440
tggctgttgt	gtaggtcagc	cgaagtctgt	acgcaaaccg	ttgtcccaac	tccatttatc	4500
tttcagggtg	tggcatctat	gttcaaatag	aggttacctg	ccaccgtgtt	ttctccacgg	4560
cagcccagtt	ggtcagagaa	gtctgagagg	catttagtcc	ggtcaccctt	ttatagtcca	4620
gtcctttttg	ggagtgtcag	atgcagtgtt	tgctttttgtg	cgttcgcaag	ggtgaacagc	4680
aagccaccca	ttgccagaaa	aacatcagtc	cgtttcatct	ggtattttct	tcttttttta	4740
aagtgaanaa	aagaagccgc	acaagaatca	tcgatgcttg	cacggcttga	aaaaaggtgg	4800
gccaatagga	ttcgaacctt	tgaccctctg	cttgtaggca	gatgctctaa	acagctgagc	4860
tat						4863

(2) INFORMATION FOR SEQ ID NO:830

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4544 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE:- DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...4544

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:830

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aggaacccat	cgtggccaag	aaactgaagg	ctgggtacgga	caggccctgc	agtggtctct	180
tggcaacacg	aaaaaatatt	gcttatgacc	gggtggtgtac	tggtggctgc	acttatcgtc	240
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(2) INFORMATION FOR SEQ ID NO:831

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2932 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...2932

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:831

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(2) INFORMATION FOR SEQ ID NO:832

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 5742 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...5742

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:832

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acgactgtgt	atgtatagt	agtccgatag	aatgggtact	ttacctcatg	gtagttagtc	4320
ttaatagcct	tacggactgt	gtatgtatag	tgagtacttg	acgactgcaa	gttacgaata	4380
atcccaaacg	taacgcattg	gcagagaacg	ttctattttt	ttcgaaaata	caagttgaga	4440
aatgcagcta	caacactatt	ttgcagttga	gttgattata	tctcattgat	atacaatgag	4500
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aaaatagaga	aagacaccgt	ttgataatca	aacacttaca	aatagcaaaa	gcctctattt	4620
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agctgtctgt	gaggtaacag	cctctaccac	cttgctccaa	tcagctctcg	caggctgcag	4920
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cgctctcgtc	taccattttag	gggtatagaa	tttgatgcgc	ttcaccttgc	cacagcaaaa	5100
gcactcacat	ctttggtttg	caacttcata	atatcggaga	aaagctttcc	ccggatcgat	5160
agtattcggg	agcaaaccag	cgttcgttta	tcttgatata	atgcgactgc	gtgtaggcat	5220
atccaacagc	ccttgcctat	tctccccaca	tcttccccct	tgccagtag	ggccaggatg	5280
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atcacatagc	tccggaggat	agcgtagcca	tagtttagct	ctgattgacc	aatccctcgg	5460
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cctccaatag	acttgtggca	gcgggcttca	tgaagcatgg	catgctgtcg	gaagtccgca	5580
agggagtgc	ctccgctatg	ggtatacctt	ccagctgctt	tagctcggcg	atagcttgga	5640
gagaggctct	ttcagctctt	tgtcatggcg	ataatactta	tgggagtagc	gcaggagttt	5700
gccctgattg	gcgaaacctt	ggttctttga	taaagtaagg	ga		5742

(2) INFORMATION FOR SEQ ID NO:833

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2035 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2035

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:833

aggtaatctt	cccgtgcccc	tacacttgcg	taatgccct	acccgtctgt	ggccgacctt	60
gactatggca	agggttacia	atactcgcat	gattttccga	acacttcgtc	tcacagcaat	120

atctgcccga	caaagctgct	aacacctttt	ctggacacct	caaatgcaca	cagtgcata	180
agccaagctg	ggagaaggat	gaagcgatgg	tggaagaggg	aaaaatccca	aaaggataca	240
gcagataatg	actcttcttt	ccgtaccgtc	tctatgccga	cagatatttt	ctcctcaaac	300
aattcgacat	cgaccagaca	ggttgtgcca	tgcgcgtggg	tacgacggcg	tcctgctggg	360
agcatggggc	ggagaggatg	cagccggaag	tatccgcagc	attgcctgga	catagggtacg	420
ggcacagggc	tgattgcctt	atgttggcac	agcgattccc	acaggcccg	gtgcagggaa	480
tagaaataga	cctatcgctg	ccgaatgtgc	tgcgcgaaac	gccgctgcct	ctcctttttc	540
gatcgaatag	tgatcgcttc	gggagacatt	ttggattcat	cgctcgaagc	cttatcgga	600
atcaacgttt	cgatctgatc	gtctcgaatc	cgcttttttc	aagtcttcca	tgcatgcccc	660
cgacagacag	cgcaccatgg	cacgactgaa	gaaacctgc	cgttggaaaa	actgatatgc	720
cgtgcctccg	aattatctct	ccacaagggc	gattggcact	cattacgcct	cgcgaccggc	780
tgaagattta	cgtctgtatg	cagctacctt	tcgttggttt	catctcgct	gacgaagtgc	840
gtaccctacc	ccataaagaa	cctaaacgcc	tctaagcgaa	tgcgacctgc	cgatactgct	900
atcgaccgat	cgccattcac	cgataccctc	acatacatcc	tgccacaggc	tactattcac	960
cttgagtacg	tgcgtctgac	gagcctttct	atacgacttt	ctttccgcat	cctcggtgt	1020
aggataacca	gctgctccc	atacttggca	acggtacgac	gagccagtcg	ataaccgttt	1080
cggccaaaac	atcagccaac	tcggtatcat	tcaggggaga	tctcttacct	cggagtgcgt	1140
ggcttcggca	agcactcgtt	tgacctcagc	tgtggaactt	cctctccctt	atcgttgaca	1200
gtgccatcac	tgaaaaagt	cttcacgaga	agattccgaa	gtcggctgt	acatatttgc	1260
tattgctcac	ccgaagatcg	tactgacatc	ataaccgcgc	ggatcagcca	catctttcag	1320
aatataggct	tcagatcggc	aagttctcca	cttcggaagt	aagcatcctg	taccgtacta	1380
tggcctccat	cgctcgctgt	agcgtttccc	gtcgtgacg	agggcttcga	tgaaccattg	1440
agcttgatcc	actttctgct	tgacgaaaag	agtgtttggt	tgcgttcg	tgagcgggtt	1500
ttagcagagc	tttgataatc	tgcatcatct	cgtgatagac	cggactgacg	cgcaagggct	1560
gaatatcaga	ccacagtaga	gcgacacgac	cagatcgctc	cccagcgct	cgacgataaa	1620
tcgggatgta	ccctgttcat	ggctgcttcg	gcgtcatctc	cccatcggtt	gcgggtttgg	1680
gattgagctg	catgatcagt	tcgaaggcct	ccttctttcc	gaatcgga	gggatgctcc	1740
ctcctgcaac	tgctcgaacc	gtttgagaca	aagtcgtcat	aatggttcgt	agaatatagg	1800
agggtgtct	gccagctgtc	gtatccggca	atcgttccaa	ttggagcagc	aaacactctt	1860
tgggtctctg	gcacagatac	cggggggatc	gagactttgt	accaatccta	tacttcttct	1920
acttcctttt	tgtccgcctc	gataccggca	cggaaagcga	atcgccaga	atctcctcca	1980
aatcacgatg	caggtagcca	tcttcttctt	gttaccaatg	atatagggag	caagc	2035

(2) INFORMATION FOR SEQ ID NO:834

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 680 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...680

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:834

tcgtgcggat	tgaggcacac	tttctttttt	atgtataagc	ataaaggtag	cctgactctt	60
ttacgaaaga	ttttgccagt	aacctcttct	taacgtcatt	cgacgtaaga	aaacaccaat	120
gaatttggtt	tttgattagg	gttaaacc	aaagaacgtg	ggcattatgc	ttgaaaaagt	180
agcgaattat	ttgtatttag	cagttgataa	tcaataagat	acgaacgaac	aaaacgctac	240
tttataagac	aaatatagtt	gatgtttttt	gcatcataga	tgatttctcc	aagcttttga	300
tgaagcaatc	aagaaaaaga	ccctcgaaga	ggcagacaaa	aaagcaggaa	tagaaagttt	360
aagatgtcgg	acagtgaggt	catgaccatc	ctatcctggt	tcctctgtca	agataccgag	420
atttgaaagc	tttttatctt	catacatcac	ctattcttgt	cgatccgagt	tcccacatct	480
tgtctcttat	atcgctttgt	ggagctgcaa	agcaggggtg	gtttcaagct	gatagcattc	540
tcaatatgtg	ttgtttgggt	caatgtacag	gcatctcttt	catcgattca	ccccactgaa	600
ggcttgtcat	atcaaacgag	ctcatgggca	taggacatga	gggatgggc	tcaaaaaggc	660

aaaagcacca tgggttggtt

680

(2) INFORMATION FOR SEQ ID NO:835

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4565 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...4565

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:835

gatcatgggt	cgctcgttcgt	tcgagccggc	agcgcgtact	ttccttcgcc	ctttgccaat	60
atcgggggct	ttgtgctgct	gacgctcatc	attatctcac	attgggtttc	caaccggttt	120
cgctcgcggc	cttgctggct	tcggtggtgt	ggctgctcgg	atgggtctga	gcggacagct	180
tcagaatctg	gccggcgtct	gacgctgctg	ctgaccaaac	cgttcaaagt	gggggactac	240
atcgttccaa	caatgtggaa	ggggtcgtgg	atggcgtgac	gcttttccac	accaggtaat	300
gacgttcgag	aacaagtaca	ttttcatccc	caatggctta	ctcgcagcaa	tgtgatcatc	360
aactacagcc	gcatggcggg	gcgtcggaac	gatggatcat	cgggatcgag	tacaacgagg	420
acttcgatcg	ggtgaaaacg	cgctgctgcg	tctgatcgat	gaggaaccgc	gtattatcaa	480
agacccctc	ccaccgtggt	cttgaaggaa	ttggccgaca	gctctgtgag	ggtgatggcc	540
gtgcgtgggt	cgcgacggac	gacctgtgga	atgtttactg	ggatataacg	aacgaatcta	600
tagcgaattc	aatcgtcagg	gtatagcatt	cccgttccgc	agcttacgat	acacggatcc	660
gccgcccggc	aggagcgaag	agggaaagta	cggaagctca	atcgccggag	aacgtctcca	720
ccaatacctc	cctgtagagt	tgaagatctt	ggatttggac	acgaatccga	gataacatcc	780
ctgccgtcta	tgacgggcag	gttccaagcc	ttggtgtcgt	cgaagattcg	catatgggtc	840
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tctctcatal	agctccggcc	ggaacatgat	atgcggatat	tgtccagcaa	taccagcccc	960
atcagcaggt	tgttctcgtc	aggacgggga	agacattgcg	atggctgata	ccgaacacgt	1020
gtacgacatt	cccagagtca	tatcgggtct	caccggttcg	aaatcctttt	ctatcaccca	1080
tccaacgtca	taagcgtcag	cacggccttg	tctttctgat	gcgtcagagc	tttcttttct	1140
gtgccaaacg	gagcgaatag	atgctgtgcg	gcatgaaagg	cggatagtgg	cgtacgaact	1200
cgtaactcag	agcatgagcg	gaaggaaaga	ttgtatccgc	cggtcagctc	ggcgtacagg	1260
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caagtttttc	tgtggcagat	agacctcgat	gaagggaaag	aagttcagcg	caaggcaaa	1380
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ccgaattggt	ggctacggaa	gcgaacacct	cgtgatgatg	ataaatccga	ggaaaacgaa	1500
cagcacccaa	taggaattga	atacggctcg	aacaggctgc	catccatcaa	agagctgtac	1560
tggccgccag	cagggcggtg	atcgtatcgt	agccctcacc	gtatagcggg	gggaaaagaa	1620
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atacaccag	tagcagagca	tagggatgcg	atccatcgaa	aaaggatcgt	tgagcgtaaa	1800
gctgaacatg	gctcctgccc	cgtgataata	taggatacgg	cggcggcact	gaccgagctg	1860
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caaacagaat	cttcgtcacc	ccgtggccga	tgtcgtcccg	aaccagtagc	gcacaaatag	2220
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tcgcgcctaaa	ggaggaaagt	caagaaccac	ccgtagcgac	tcgttttctt	tccttcattt	2460
ccccaatcct	ttaaaaatcg	tttggcaagt	atataacaga	cttctatatc	cagcctgagg	2520

ctcatattct	cgtagtacag	aaaatcgttt	gcaggcgttc	cagcatttca	tccggagtg	2580
aagcatagcc	gtatcggtcca	tgccccagga	ggtgatgccc	ggacggacat	tgtgcagcag	2640
gtagtatagg	gagcacgctc	cacgagctgc	cggatgtaga	aagcccgttc	ggggccggcc	2700
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cgaaccactt	gatgctcttg	gcgcattcgc	tcatgttggt	gccgtcatgt	ccaccatagg	3060
ctctcctttc	atccccgtga	catttacttg	gctccggcga	aaagcatgct	gcgcattcgg	3120
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cggggaatcc	acggcgagga	tgatctgatg	gggcttgctc	tcttgccacc	cttcgcgaca	3240
agcgtggcaa	aggacttgag	cgactgctcg	aatccctctc	tcgcgtcgga	gggacgaagt	3300
ggagccgcgt	ggtggccatg	tcgtttacgg	actcagccac	gaagccgtct	cttcggctat	3360
cgtgccgctc	ccgatgagca	gacccgatga	taaccttttg	tcttttttcg	ctctttgatg	3420
ccgaaggctg	caccataga	cgggggaaat	atacccaagg	caacacagtc	gccaccatct	3480
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aagacgacga	cggatccgac	cagcacccgac	gccacggcgt	cagcagttcg	gatattcggc	3600
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accgaagaca	tctgccagca	gatagcgtag	gcgggtgtag	tgatacgtgt	cattggcgga	3840
tcacctccac	ttctcccctt	gtgccgagtc	gatgatcgaa	gaggcctgac	cggccggctc	3900
ttcgcgccgg	cactccacta	ataatccaca	ccgtctaaga	tgcccgagc	gatctcgccg	3960
aaagtccgtc	cgagggttgg	ccgctgatat	tggccgacgt	ggagactatg	gggacacgat	4020
cagtctgcat	agctcggcag	agaagggttc	acgcgtcagg	cgaatgccag	cgatccgtcc	4080
gaagcgatga	gtgccggcgc	cacgcctttg	gcctgagata	gatgatggtc	agcggtttgg	4140
tcgtcagctc	gatcagatcc	caggcaactc	cggcacttcg	tccatgaggc	cttgaggctt	4200
cgcttcgaa	tcgagaagga	ccaagcatgc	tctnctgtgc	cgctctttct	ttcagccggg	4260
aaaccgctgg	acggcttctt	cgcttcgtgg	atcgcagcct	attccccaaa	tgtatctgtc	4320
gggtaaagga	tgattccgcc	tttgcgcatg	acttcggcgg	cttcttcgct	tcacttctct	4380
gaatatcggt	gagcatatcg	atgggtatat	tctatttttt	cgagagagcc	gagtgcgctc	4440
actccttcac	gggcaaaaga	tgaatatctg	ccgtatcaat	gctttaatat	gtcatttctt	4500
agtcttcacg	gttatttctg	tctgtttctt	tattttataa	atgatcagtt	ccggccgaga	4560
aagtt						4565

(2) INFORMATION FOR SEQ ID NO:836

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3444 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3444

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:836

gagctcggta	ccctgccacg	aacgcgcatg	tagcgaggct	tattagccga	gccaataaag	60
tgagcataca	aggaagctct	acttccaaaa	cctcatgtct	tcttccgtgc	tcttgcaaac	120
agtcagagtt	tgcttgccat	cgaatgtgct	tcttccacgt	atgtgatctg	tggcagggtca	180
agttgctcgg	caatctaggt	cctacctgag	ccgtatcacc	gtcgatagct	tgacgaccgg	240
cgatatcaga	tcgtggtcga	tctttctcaa	agcttgagag	agtgtgtaac	ttgtgccaat	300
gtgtcggctc	caccgaactt	acgatcgctg	acaaggatgg	catatctgca	cccatggcat	360
atgcttcgcg	caggatagct	tctgcctgtg	gcgtcccatg	gtgatcacag	ttacgtgagc	420
attgtgtgtg	tccttgaagc	gagagcctgt	tccttgcctc	ccttgcctc	ggggttcag	480

atactgggca	accgtcacga	atgagcgtgc	cttttacagg	atccaatttg	atttcggtat	540
atcgggtacc	tgtttgatac	aaacaacgat	attcatagtc	taatgcttat	tattttaata	600
agttggatgc	gattaccaag	cgttgaactt	cgctggtcct	tcataaatct	cagtgatctt	660
agcatcgcgc	atcatacgtc	ctaccgatac	tcacgagtat	agccatatcc	tccgtggaac	720
tgaaccgctt	tcgtatcata	tccatagccg	tttcggcgca	atagagtttg	gcttgagccg	780
actcatcgta	tagggcatct	tcattgtcctt	cttccagctt	gccaaacgaa	ccacaaacga	840
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tgctgcgacc	gaattgttta	cgctcttttg	ttacttcacc	gtctcgtcca	tagctccctg	960
tgcaataccg	agggcctgag	tgcgataccg	atacgtccgc	catcaagggt	tttcatggcg	1020
atcttgaagc	accgcctacg	cgaccgagaa	gattctcttt	ggggacgata	cagttttcaa	1080
aataagttcg	catgtagccg	aaccacggat	acccatctta	agctcttctt	tccgatagag	1140
aaccggggag	ttcctttttc	aacgatgaaa	gcggtgtacc	acgtgtgccc	tggctcttat	1200
ctgtcatggc	aaataccacg	tatactgagc	atattcggca	ttggtgataa	aaatcttggt	1260
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gtactgcatt	gggttcggta	agtccaaatg	caccgatcca	ttcgccagaa	caagtttcgg	1380
caaatacttc	atcttttggt	cttctgttcc	attttcgtag	agggagctgc	gcacaaagat	1440
gtgtgtgcag	agagaaccac	gcctgtggta	cacatacacg	gcttagttcc	tccactgcca	1500
ttgaatacat	tacgtttgtc	cgccggcacc	acgtattcca	acggggaaaag	ggatgccct	1560
cagtcgcgatt	cgcccatctt	ctttactggt	tcgatgggga	aacgttctctg	ctcgtcattt	1620
ctgccgccag	aggttttact	tctttctcgg	cgaaactgcg	gatcattcaa	gaaacaattg	1680
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aaaaactctt	ttattgttgc	atcggatgat	ctcagaagca	aaagtcaatg	aagcttcagt	1800
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gcgttttaca	tcacaaaaaa	tacctttttc	caagcagaga	agagaccttc	ttccttcaat	3360
ctttcaagca	aattcacggg	ctgtcaagca	cttcacgtgc	tcggctctgt	acgataccgc	3420
cttctttgaa	tcaacttccg	atcc				3444

(2) INFORMATION FOR SEQ ID NO:837

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2577 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
 (B) LOCATION 1...2577

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:837

tacgaattcg	agctcggtag	ccgggggatag	cctgtaccgg	cagagtatat	tgtggggagat	60
aagatcctct	cccattgttc	gggcgaatca	tatttgagag	tttcgtcttc	ccctttctta	120
gggaatccac	atccctcagg	gatctcccca	agacccttaa	gggatccctc	ccgagacccc	180
ttaggggtcc	cacccggaact	cctcagggat	cccataggag	actccccggg	ggtctcgaca	240
gggaccctcg	ggggtcttca	cggactgaca	acttttcatt	atcatgttaa	cccttaacaa	300
ttattcctat	gcagaactta	atccgtcaag	agccgggtca	tgagatcggc	aagcatggag	360
agaccgaagc	atcgggtcacg	gttcacaaca	tttattgtac	ttttaggcct	catttagaac	420
gctatggagc	aagaaaaaca	gtgcagacag	agtatatcga	gagcgacatc	aagacgctgg	480
aatgggacga	catattcgcc	gtcgtcccg	gatgtatatc	ggtaagctgg	gcgatggcat	540
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actatgcttc	ccgacctgct	atcgggggat	tacttatagt	gggcttacgg	tcgatct	2577

(2) INFORMATION FOR SEQ ID NO:838

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2257 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2257

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:838

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atcgaacagc tccgttggga aaggccctgc tccgacgcgc gtgcaatagc cttgaatata 60
ccgtacacat cgcccacatt gcgaggagct actcccaacc ggtacaacag ccggcacata 120
tcgtattgct actggtcacg aacgggtaga accgaagtca atgtccaaga gcgaaccttg 180
ggctccttcg gccaaacctt cttgccggac aaaagggcac cattgatcag aaattcactg 240
tccacaattc aaacttgccg agatattttg tagcctccat ccagcgttcc tccaatccgc 300
cagcttgctc gtaggatagt tcagggaatt cagtatgcga agagacgctc cttggccacc 360
gaataggcct cttcgaagcc gtgttccaaa tcccgcacgc caagccgttg cggctcactt 420
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gatggatttc aaacaggatt ttaatatcgt tgcaaggcat agtggagtcg cctaacagtg 2160
agtgaacgc tccatggaaa tactatcgaa aacgatcctg tcgcttgttt gttcctctct 2220
ctcttacaag atgaaatctg cagcagggta ccgacta 2257

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(2) INFORMATION FOR SEQ ID NO:839

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1177 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1177

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:839

gagctcggta	ccctttcaac	ttcgttccct	actacgccaa	tcttttcagc	cgctcttcgt	60
cttcatatcg	gttatattct	ttacgtcgaa	gctggctgga	agtccgagat	catcgcgatg	120
ctttcggccg	gagtcagttt	caagcgggtg	tggtgcccta	tatgttgctg	gcaacgggtg	180
ttgccatact	gactttctgc	tcaatagttt	cgttatccca	ccgggcaatg	ctacacgaat	240
tgatttcaga	acaaatacat	caagaacaag	aaggtagagt	atgccgagag	cgtagctcgt	300
aagtgaagaa	aggggtcttt	gcctttttcg	gacgtacag	cgagccatgc	gaaccgggta	360
ccagttcagc	ctggaagagt	tcaagggcaa	gcgctcgtct	cccgtctgac	agcggatagg	420
atccaatacg	actcgtctta	tactggcgca	ttttcaacta	caggatcagg	cacttcggta	480
agtataaaga	acggtcgaga	gcggtagcga	gatggacacg	gtaatagccg	tccgcccggg	540
gacttcctcg	tggcagagga	tgatgtggag	acgatgacga	ctaccgactg	catacctata	600
tatcgcatac	gaagcaaagg	ggcgtgggca	acgtcaactc	tttgagatcg	aactgcacaa	660
acgctatgca	gccatcttct	ctgccttctc	ctcaccatta	tcggtgcttc	gctctcttca	720
cgcaaagtaa	aaggaggatg	gggatcaata	tcgctatcgg	tctggggcctt	agctttgcct	780
atatctgttt	atgaccgttg	ccggtacatt	tgccatcagc	ggatctttgc	ctcgtttatg	840
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cgcgataggc	agacttcctg	atgtaacgat	accacaacta	tgaaagagaa	aatacagaag	960
aatatcctca	taaagaacaa	cgtgccactt	tcgattacga	gattttggac	gtttacacgg	1020
cgggcattga	ttggtcggta	ccgagatcaa	atcgctccga	ctgggcaaag	gcggtttgtt	1080
gatacctatt	gctacttcca	tcggggagag	ctgtgggtga	agaatattac	atagccgaat	1140
actctatgca	cctatacaac	catgtgctcg	ccgcgac			1177

(2) INFORMATION FOR SEQ ID NO:840

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1041 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1041

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:840

aaggaaacta	atcctatcta	actctcaaaa	tcaactaaac	gatatgaaat	attggtattg	60
aactgtggta	gttcatccgt	caaataataag	ctactcgaat	gcccaaagga	gacgtatttg	120
ctcaggccgg	agtggaaaaa	ttaggcctcc	cggctcattt	ctcaaactaa	ccatgcccaa	180
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ctttcgtgct	caaagatgac	aaatacggat	gcatcaagag	ctatgaagaa	atcgtgcagt	300
agggcaccgt	ctcgttcatg	gaggtgagaa	gttcagtaat	agctggagat	cacaccggaa	360
gtaattgcca	aagtagaaga	atgtattcct	ttgctccact	tcacaatccg	gctaacctca	420
aaggcgtcgt	agccatcgag	agttgctccc	cggtatctcg	cagggtgggtg	tattcgatac	480
agctttcttc	aaaccatgcc	ggaacatgtg	taccgatatg	ccttgccata	tgatatgtga	540
acaagcatgg	tgtacgtcgc	tatggatttc	acggcaccag	ccatcgcttg	tcagtgcccg	600
tgcttgtag	atcttgggtt	tggaactacg	caaaactgca	taatcacggc	acatatcggc	660
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gcggtgtact	tggcgtaagc	ggtgtgtcct	ccgacatgcg	cgaatcgaag	atgccatcaa	900
gaatggcaac	gaaagagcta	ctctggccat	gccatgtacg	actacaggat	caaaaaatat	960
gtaggagctt	atgccgctgc	tgggaggagt	cgatgtgctc	gtattcaccg	gtggagtggg	1020
tgaaccacaa	taccacgaga	g				1041

(2) INFORMATION FOR SEQ ID NO:841

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 630 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...630

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:841

gcttggcact	gaaaggacgg	tacaggtgca	cgctgagcag	tccgactttt	ctcctttggc	60
acggaggaag	tctatcactt	cggaatagc	ttctgtcacg	aacccatggc	aataatcaca	120
tgctcggtt	cgggatctcc	gtaatagcga	acagatggta	gtggcgcccg	gtaaccgtag	180
ccagctgac	catatatact	gaacagcttc	gggcaactgca	tcgtagaagc	ggttacatgc	240
ttcgcgttct	ggaaatagat	gtcgccgttc	tgtgctgtgc	cacgagttac	gggcactcag	300
gattgagagc	ttgcttgccg	aaacgcttta	catcgctcca	atcatgaacc	gggctaagtc	360
ttcattgtcg	agagcttcga	ttttctgaat	ctatgagagg	ttcggaacc	atcgaagaag	420
tgaatgaagg	ggatgcgagt	agtagcggtt	ccaagtgtgc	cacgccggcc	aagatccatg	480
acttcctgca	ggatccggta	cagagctgag	caaagccggt	ctgacgtgca	gccatgacac	540
ctgatggtct	ccgaagatag	agagggcatg	ggaggcaata	gtacgtgcca	aacgtggaaa	600
acacaaggtg	gcaactctcc	ggaaatctct				630

(2) INFORMATION FOR SEQ ID NO:842

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 4319 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...4319

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:842

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cttcgtgccg	ttacgatagg	cgaagacggt	tacaccctga	tgacgtactc	gtgcacgata	120
agtatgagca	ggacgtaacg	ctgcacctct	cctcgcaatg	atgggttaca	cggatgatag	180
tatgcctatc	gctctcgtgt	catccgcgac	gtggaagcac	cctgctacga	cagagcggtg	240
gaagccagat	cgaagagatc	cagcagaaga	accccatatg	caagctccat	gatccctcat	300
ccaaggagac	gtttggggag	tcaaataaag	cagtttagac	gatagtacct	aaacgggtag	360
gattcgacag	aaacctttcg	gggaggatgt	cgttcctacc	cgtttctctt	ttatgggacg	420
agtgtagacc	ggttattcga	cggggtcgga	gattgatcga	gtataaaagc	agggagccat	480
gccgaaagat	gcggtatggc	tcctgtcag	tcagattatt	tgtgtctgaa	atacttccgt	540
acgagaggag	ggtcagtcct	tggcttccat	acagtcctcg	gaggtttcag	atttcgaatg	600

cgccaatcct	gcgatatag	attgttgcca	cgtgtgcgag	atTTTTcagg	aagccgagcg	660
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ctgtcgggcc	aggtagagag	agcttcacat	cgtgaaaatt	ccatatcgaa	gaatgagtg	780
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atacggggaga	gaggctttga	atcgcagatc	ggcaagtagc	cccattaatc	ctataggagg	4260
agcatatagg	aggtttccac	caaaatgtaa	cgatctccca	gcgtcagaag	cgTTctgcc	4319

(2) INFORMATION FOR SEQ ID NO:843

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 412 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...412

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:843

tttggaacc gatgctccga acttatctcc ctaccatcta ggagtttccg tacacagcct	60
tcttggtgat cctaattgctc aagtcctgca atacacctct ccatctgtac ctagtgcaact	120
gagcagggct tccnntgacc accgntatt cgtgattccc tgcttgctct tcttcccgaa	180
ggataagcat ccttttatcc aaaagtccaa gaaagcattc tcggttaagcg catgataata	240
accgaactgg ccatgtgtcg gtatttctgg aatagtgaat ggctcacctt gcgttggggtg	300
tgaatgtctt ctaccgaata gaatacaaat acgggcaatg gccgtacctc cctcatctg	360
ttgcataccc ctctagtagc ccttttggtg tatcctgatg ggtcttggtat gt	412

(2) INFORMATION FOR SEQ ID NO:844

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 735 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...735

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:844

gggttccatc cttggacacc agacgatcgg cgatataagg tttgagaaag ccttgcgccg	60
gatctccgcc aatccggctg aatcgggaagg aatctcttcg gtacgatctg ctogatggcc	120
atccccctct catttccgat cataaaccta tgtccgtaag tgaagtaatc ttttcggcat	180
aggaaatact gtcgagatct cgttggaag acgacggatc agctccagat tttctttcgt	240
gaaggattgt cacagtcggt caatacacga gcatagtatt cattgccgaa aacgatttga	300
actcctccgt cttgatgatc ataggatcgt cctcgagaaa atatcctccc aagaggtttt	360
gatactaagg aaacgcaatc cattgaatcc aaaaggagaa aaaagaaaaa acctcccaat	420
acaatccaac gcttgcggtat atccattcgc cacgatggcg aaaccacctg ttaatgcgtt	480
ctattttcat gctttgtctc gtttgtgttt tctgtattcc gtattatagt catatctgct	540
cagtgtctgc cagccggccg taccgaaagc gatatatctg gacagacctg atttatctcc	600
tcctcgggtat gaatctcatt tgttattatc tcgatgaaac attgaccac cagcggccc	660
ccaatcggat aaagaagggg cttaccgggt gttggcatgt gggatatttt ctttgaagag	720
ctgcagatag ttttc	735

(2) INFORMATION FOR SEQ ID NO:845

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 348 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc feature
 (B) LOCATION 1...348
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:845

ttcccagttt gccactgcag aacgcagcag cttntctaca cgtgccgaac ttctttgtta	60
gagaacttca gcacacccaa ggcgcgattc acttccatcc acgaatcata tcggggccacc	120
aatctcatct tgcggggaga agtaggccgt tacgaagctt ggcaaagtac atctgcttga	180
gggcttcctt tcttgctcgg ctgaattatg ttttcttgca cccattgttc ttaatacttt	240
taattttcag attcctgaag tgtttgtatt caaccgaatt acttcttctt gttacggcat	300
gaccacggaa agtaccgtgt aggagagaac tcccctaact tatccac	348

(2) INFORMATION FOR SEQ ID NO:846

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 5677 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc feature
 (B) LOCATION 1...5677
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:846

gcggtctcttc gctttcgtgc cgcgtgcctg cggctctgcga tgcattccatc cgcttcgcgg	60
cgcaggaggt tggctgcgcg gcttggttgc cgttcggtgc ttccagccgc tcttcccgtt	120
tggtcaggta gtattcgtag ttgccttgta ggcatacagc tgtttggtgt ccagctccag	180
tatgcgggtt catacggatc cagaaagtag cggctcgtgg tgaccagaag cagtcggatc	240
tgctgtgcga gaggtagccc tccagccatt cgatcacgtc cagatcgagg tgatggtcgg	300
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gaatctcccg cgcgcgctgt tgtactccca cgcgccaaagg gcatccattt cggggagcaa	480
ctcctccatg gtttgccgtc gccccgagcc gaagcctcct cccattgcgc tatcaggag	540
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aagctgtggc aggtatgcac ggcggatacc gttttggaga tcacttctcc ggaatcgggt	660
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cagcaccggg	gcatacgat	cgtatcggga	gagaagcagt	ccgagtgtag	gtaagtaatg	5040

tccgcaaagg	atcgacaata	cctctcaaat	agggcacgga	tgcttctgcc	actatttgag	5100
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tcctttcgtc	taaagttaat	aagggttcac	gtgccacgag	tgaattatt	gcggttcgaa	5580
ttacggtaat	gctcttttcc	catccggtac	aaatataccc	tgtacgaaat	acgctttttt	5640
gccgagggcat	actttgtaca	gggtaagtaa	gcatgtc			5677

(2) INFORMATION FOR SEQ ID NO:847

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 6232 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...6232

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:847

tggagcacaa	cccctgctcg	gtcatcgcg	ttgccgtctg	ggtaataacca	tccggagatt	60
acggagatgc	agacacgtgc	catcctcggt	gcttgcttga	gctgaagaag	gaagggtgtag	120
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gaatgctctg	cgcaacgcgg	aagcctacat	ccctatttgg	tgctcgattc	gaccggcgga	5520
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aacagcccta	ttggttcggg	atctccagaa	tgaactacgt	caacggatgg	aagcttagct	5880
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accgaagaga	ggtcgtccat	caatctcttt	gctttgctta	caatcgccctg	cgactctatg	6000

gtagctggca	tctgtcggac	ttcgattttc	atttttcagc	cgactatgct	ctgcgccaag	6060
ggatagagcg	gatatagaag	actacaagcc	ggatgataat	tatcatactt	acgacctccg	6120
tatctggcca	ttcgcccgtg	gtatatgctc	aatgagtttt	ctggccaagc	ccaaccttct	6180
accggattcg	cacggataga	ggttgtgccc	tgagagtggg	tgcggtagtg	at	6232

(2) INFORMATION FOR SEQ ID NO:848

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1059 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1059

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:848

ccagatgaag	cccagagaag	tggctccacg	agatacgaaa	gagaagttcc	cgtttgtggc	60
gttcccgaag	agtgggtacc	tgtactgcat	aaggccggta	tcttaccgta	cagtcgatgc	120
gagaggataa	accgggcaag	gtgatgcgca	gctgatggac	atcattaaga	aatataagtt	180
ggggcttgcc	ggtttgatct	ggaaaccgtt	tcggcttggc	aggaagcccc	atatgagtaa	240
cgatttacia	ggatagcggg	gcgaatagga	aggctccttg	tcttccgtgc	ggctttcttt	300
tttatccgga	taattaaagt	atcatggggg	gaatcgggag	aatggaatat	tgggtagtgg	360
cagttgggct	acggctctgg	ccaaaatcat	atgacctctc	aaccatccat	caattgggtt	420
atgcgcccgc	aagagcaggg	gagggcatta	agcgtacggg	gcgcaatcct	aactatctgc	480
gcgatgccgt	ttcgatcctc	ggaaaatctc	atttttcacc	gattcggatc	tgaacagttt	540
ttcagagcca	gcgatgtggg	ggttcttgtc	actccttcgc	ctttcatcaa	tcctatctga	600
aacgcgttcg	ctcgtccagc	atgcgcgaca	agctgatatc	aatgctatca	aggggatcgt	660
gccggatgag	aatgtcttgg	tatcggatat	ctgcacgatt	tctgcgatgt	ccccaacgaa	720
ctgatagggt	tagtcccggg	ccttgccatg	cagaggaggt	ggccagagag	cgcagatcat	780
atctacgggt	ggctgcttcg	atatcaataa	ggcaaaaagc	atggcaaacg	tacacgcaac	840
gattatgtga	agctgtacga	ccagtcagga	ccgtagtagg	cacgaatatg	cctcgggtgct	900
gaagaatgtt	tatgccattg	ctgccggaat	agcaacgggt	ttgcagtatg	gcgacaactt	960
tcaagtctgt	cttgatgtcg	atgccattgc	tgaaatgaat	agtttcgtca	ataccctgca	1020
cctcttgga	gagagatcac	ggattcggta	tattgggctg			1059

(2) INFORMATION FOR SEQ ID NO:849

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2146 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...2146

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:849

aaacttgaaa	ttgttcatga	tgaatatgct	ttttgtctat	agccgggtaaa	tgccggtttcg	60
gcctaccttt	tcaaaggtag	caaattcttc	atcatgtgga	aaatacgaatg	tcgatgggtg	120
gaatgtacac	attccgggtat	caagtacgta	ctctgaccaa	attcttcgaa	taaatacctt	180
gaaaggcgtc	tgatattggg	ttctcttagc	cttaaagctt	actccgattt	ctttaatctc	240
cttaatctca	ttctcataag	gattttctcc	ggatcaattc	ctaagtagag	gtgccttata	300
gtattgtaaa	aatctgaaat	agaacttttt	atgatctgtg	aaatttccac	gagggtcttt	360
attcataatt	cgctcagata	taaaacgaga	gtaattcatg	tagccgattt	cgacgaatag	420
tttcttccaa	cattcataga	ttttgccgga	gagtaggatt	tgaccatcaa	ctctgattct	480
tgtcccattt	cttacgaaga	gtttcatcat	ccatcaataa	gcgtaactta	tccgcgaagc	540
ttcatgtgct	tccattggca	caaggaaacc	attgcgaccg	ttttcgatag	ttccctcggg	600
ccggtcggac	aatcgtagat	gattataggt	agtgcattgc	ttctgcttcg	agaagtacca	660
ttggtagtcc	ttcgaacggg	gacgtcttag	ataaatagca	gatgattcgt	agtattgcg	720
aatttccggt	gtagaggatg	tatttctatt	tgcgactcca	tattgcgaga	tgcaatttct	780
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gccaatcgcc	aacatttggt	tgtgagtagt	acatctcttt	ggactgtagt	aaatgaaact	960
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acacggtatt	ctgggtcggt	ttcttgcata	gctctttatc	ggagggcata	atgcaactgg	1860
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cttcatgcct	tttttatctc	tttggttgc	aattctcctt	atgttttcgc	aatacccaaa	1980
tacgagccaa	aaaagttttc	aacaacgaaa	cgagtttggg	atgattccaa	ataagcacct	2040
gaatggaagc	ggattttgag	tcgaagaaat	gagaaaacgg	actttttcag	tttgagtttt	2100
gatctaaaga	gatctggaaa	cgatttatat	ataaatcatt	tgcaat		2146

(2) INFORMATION FOR SEQ ID NO:850

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 796 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...796

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:850

gccgctgctc	attcgggatt	ccagttcggc	tttctccttt	tctaattttg	tagttcggct	60
tcgagccggt	ccagctcctg	cttctccttg	aaggtcagtt	tcgcggacgc	tcggcagcgt	120
cggttcgggg	cttttcgctt	tctgcctacg	tgtcgagggg	gaagattcga	cggctctgct	180

ttcggcctct	tectgcgttt	gtattcgcg	tactgggtgt	agttgccggg	gaaatccttc	240
acgatccgtt	cccctcgaac	gtgaagagat	ggttcactac	cttgcccatg	aagagcggtc	300
gtgcgagacg	acgagtacgc	atcctttgaa	ttcgctcagg	tagtctccag	cacgttcagc	360
gtgaggatat	cgaggtcgtt	ggtgggctcg	tcagaatcag	gaaattgggg	ttcttcatca	420
gcacggtgca	gaggtagagc	cgcgctgttc	gccaccgctc	aacttgtgga	tcggcgata	480
ttgcttctcg	gcgggaaaag	gaactgcgtc	agcaaggccg	atgccgagag	ggtggtacct	540
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gtcaaaactgc	atgcccttct	gactgtaata	gccgaaggaa	ccgtctcccc	tacatcgaaa	660
taccccgagt	ccggcttttc	ttcgccagca	gcagccggag	gaaagtggtc	ttgccacgc	720
cgttgggccc	tacgaacct	ccttgctgta	ccgctgaaa	atgtagtcga	agtcgctcag	780
gatatgcgat	cgccga					796

(2) INFORMATION FOR SEQ ID NO:851

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3743 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3743

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:851

ctctgggttt	ggtacagtgc	aatgtgaagt	tcctcttcga	aggtgaggag	agataggctc	60
taccaatttg	gaagcattct	gccgcgcaca	caaggagagc	tatcggcaga	tgtgatcatc	120
gtatccgata	cgagcatggt	aagcgcaaaa	ccccgtcgct	aacgaccggt	ctgcgcggac	180
tgcatatttg	ggaaatgagg	tgaccggccc	gaacagggat	ttgcaactcg	gacacttcgg	240
aggtgcgtgg	ccaatccgat	aaacgagcta	tgcaaaactta	ttgccggcat	cgtgacgaga	300
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tcaaatgatc	gcacaggtag	ctttctccga	agaaaatact	gtcaggctct	tgacatagac	420
accgtattcg	gggaagccgg	aacagcacac	tcgagcggaa	cagctgtcgc	ccgtcattcg	480
acgtttgcgg	atctggggcg	gctatacggg	agaagggtgt	aaaacgggat	tgcccttcgag	540
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cgcttcgcaa	tgagaaaaat	gtgctgatac	acttgcaact	atcgagagaca	gaaggagagt	1620
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caaagcttgg	cgttcggatg	ctacagcagt	gaaagcaacc	acatatacga	aagtgcgaca	1980
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caaagggggc	ctgtttttatt	ttctctctta	tgacaaaggt	tccaaccgat	tacaggaatt	3240
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aaaaaaaaacga	gagcgaaaacg	tctcacgacg	tccgctctcc	aattaacctt	aaaatctaatt	3360
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aaactccatc	aacaggctga	cttcgattta	gttacagtct	ttttctttct	tggtgtgtctg	3600
ccttatcttt	gaggattctt	cctgctgcgt	ctttagcttt	cttcgaatgc	tgtccgaaag	3660
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agcacgaagt	ttgctttgaa	atc				3743

(2) INFORMATION FOR SEQ ID NO:852

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2241 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2241

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:852

ggattcgtat	ctggcatcga	tatcattaat	ggcataagat	ctcgtcagcg	agcacccaac	60
ttttcttgca	tacgggtatc	tgcgatttgc	ttttccacct	ctgccattca	ctctggattt	120
cgtacagata	gccttgctgt	tcggccgctg	caatttaatt	tgcttgctgc	tgatgtgatt	180
cagaaaatca	ttcacgcagc	cctgtcggat	ccattgatac	caaatcggga	gaaaaactgt	240
tgggcaacat	ggagggctga	acaccatcac	cgataatcag	agccaatagc	tcttcggact	300
taccgtaaga	cccaacttgc	cagcttgcgt	cccgcgcagc	tagcctgtac	atactgctgt	360
gcgagctgat	gtttcagaga	agcacgctgt	tctcggtgat	ctttgtttcca	ctttgctcgg	420
cgcgttttctc	catcgctttg	aacgctgttg	gtaatcgtag	attttgattt	tctctccgtt	480
gatatccaag	ctacttcttg	gctctgacgg	aagaaagtag	atccggatcg	aaggaagtc	540
cgataataaa	ggcaaaaaga	gccacgccca	ccactacgat	gagcaaacgg	ctttacctct	600
gattttctct	aatgtcgcca	ttttgttatt	atgtttttat	ttattatgca	ctattaagaa	660
tgtgttttatt	aagccacaaa	gatacaaccg	gcttcaaaat	gccaagcctt	tcaactgatt	720

gttttttagt	tcgatggctg	tcgatggaca	ttttcaccag	ttcgatcttg	gtggaagaag	780
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acccaaaacg	ttcgttcaca	tcattctattt	catacgacca	ctgaccagat	aggtatgagg	960
gccgagctgt	ttggctatga	cttgcgagtg	tcgtgttcgt	cctcaatgtc	accgaaaatc	1020
tcttctacca	atcctctaata	gtgaccattc	cggccgtacc	tccaagttca	tcgatgacat	1080
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ggtacgaata	cagtagtatt	gatacgtttt	tgccagcttg	cccacgaaac	atttcgctcg	1200
aatggatata	tcctactacg	tcattcatgtt	ctgtctgtag	ataatgatct	tggaacaaacc	1260
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gacgaataaa	agagcgagaa	aaccggtgaa	gagtttagac	agaggataaa	gcagataata	1560
gatcgctaga	tagggagggc	gaataccctc	atcatcatat	tggcattggg	cttgaaatgg	1620
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gtaaaagtgt	aatcagtatg	tacaggtaat	tcatttttgc	ctttggtggt	tgagaaaacc	1980
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gtatggtgtc	ggcggattgt	cctcctcttc	actcacatag	taagtgcgcg	gaatgattga	2100
atatggttac	tcaccataat	cttgagttgc	agtgaaaaga	cgtccctcgg	agtattttgtc	2160
cnggctttga	atgtagactg	tatcatcgga	ataaacaatg	gcgttttctt	atccatataa	2220
atcgggggga	atggaagtct	c				2241

(2) INFORMATION FOR SEQ ID NO:853

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2974 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2974

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:853

tgccggaagt	cgaacatgcg	gatggccagc	gtacgcggat	cgttctcggt	tgccctgtt	60
tgcccgcccg	ataggtgaag	agcaggccga	tcagcaggcg	gtgagcgaga	aagctcctgc	120
caaagctgct	cctttcctga	ttcgcgacct	atcgctccctt	tttccaaaag	gaaagccaag	180
gccggttttg	ccacgtggtc	aggggtgatc	ctcccagcag	aaaggcaaac	cagcgaatgg	240
tgactcgccg	aaacttccac	gcatcttgta	ccgaaccgac	agtacagtga	tggaagggga	300
agcaggaaga	acgagagtgg	atagctctcg	atagtgaacg	gcaggtaagg	gctgtgaagc	360
tgccggccga	caagaggggtg	acgagcaggc	tctcgtccgt	ccctgaccgg	ccacgcggcg	420
gagataggcg	taggtggccg	tacgcctgct	gccgtgcaca	acgtcatcaa	ggtcagacaa	480
atgccgaggg	taagctctct	cctccgattg	tgacgaatcc	gaaccgattg	aggacataga	540
gaggttcagg	aagggatggc	ttatgtcgaa	gacacctcct	gccgtttcaa	gcgatagtag	600
ttgtcatagc	ccagatatgc	accgatgagt	ccgtcgttgg	tgtcaacagt	ccggtggatg	660
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cttatattgc	aaatgtagat	attatataat	gatgagaata	tactatggtc	tcaatgagag	840
gatactatgg	tctcctatga	gaggatacta	tggtctcaca	cggaggatac	tatggtctca	900
tatgagagaa	tactatgggtc	tcatatgaga	gatactatgg	tctcctatga	gaggatacta	960
tggtctccta	tgagaggata	tatggtctca	catgagagga	tactatgggtc	tcacatgaga	1020

ggatactatg	tctcatatga	gaggatacta	tactcttatg	ggagatcctg	tttataattc	1080
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ttttcttcaa	ttggcgtgtg	gttcgcgaac	gtgctgctcg	gaacaggatc	gcgagaactt	2520
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gtgccatact	gaagtcgtat	gtcgtgcaga	tcgctccctc	aatgcagcca	atgcccgctc	2820
ccgaacggag	aatcaggagg	tgagcgcaac	ctctccgagg	ccgtgggcga	agccagtcgt	2880
ctgaaagtgg	aaaagccgaa	ctgaccggaa	aggtggagct	ggcatcgaaa	ctggaggcta	2940
cggcatatcg	gtggctttgc	tcgacaagaa	aggc			2974

(2) INFORMATION FOR SEQ ID NO:854

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 564 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...564

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:854

gcctccgaag	ttcaagggtgc	ctaccggcgg	ttctaccctg	atcaagtacg	gctatggtat	60
cattccgaag	ctatgtatgt	gaataagttc	tatatcatat	atatgactat	tccaaagacg	120
cttggggagca	ggggatttta	ttggccatga	gttcaactca	cctcttcact	acgtggaaga	180
atacactttc	gattttgctca	atggaagggg	aaagacatca	aggtggcttt	cgtgaaaaac	240
ggtactatca	aatggctatg	gatgacatca	gaatcctgaa	ctaccaaaagc	ctgcagaggt	300
agaacaagaa	ggtattcgga	tttatcccaa	tccgactacg	gatggctgat	gctggacaat	360
gtgggtgatg	taagcgccat	tcgtattata	gaatgtatgg	caggccgctt	gtgggtggctg	420
gcaatgccgg	tagctctaag	tgagtatcga	tgtctccgat	ttgggacggg	gcaattatgt	480
cgctcgatatg	agtgcaaagg	ccataggaaa	atcagccggc	tgataacaaa	agagtaaagt	540
ccattctctc	ccgaggggga	gggc				564

(2) INFORMATION FOR SEQ ID NO:855

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2795 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2795

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:855

cggtataat	ctcgaagcaa	atcctctctg	caagctgcaa	gcatgaaatt	cgacaaacga	60
aattccacac	tgcaagcctg	caatatgaaa	tttcggcgaa	aaattactcg	ctgcaagctt	120
gcggccatta	atctcgggaag	caaaattgtc	actgcaagca	tgtaacagta	ttttctgcaa	180
ccgaaatcac	cgtctgaaac	ttgaatcaaa	gagatactaa	tcataagaca	attattttct	240
caataaataa	tcattacttc	catatttagt	catagctatc	atgcgtactt	atttaaattc	300
ctcagccgca	acaaactcta	caccttcggt	accatcgtag	gcttgccctc	tcgctcatat	360
tcgtcttgct	gcttagcttc	tatgtacggc	gcaacagcaa	gccgatcgta	ttcataccga	420
ttacaaaacgt	atctatcagt	aaatgtcgag	agtaagaata	actggagcgg	atztatctgt	480
tgctatcctg	cggaacgctc	attcgcgagc	aggtaccgga	tgtggaagag	atatgccgct	540
cagcgaatac	aacgacaagg	aatacatctt	tatcggtgcc	gacaagcaaa	cgggttgatt	600
gcctcccatc	tttcgggtcga	atccaaactc	tttacttctt	cgacggctat	aaactccttg	660
aggggtgatcc	caaaaactgtc	ctttccagca	gaacagtgcc	gttattttct	ccgctgtggc	720
agcccgatc	ttcgggaacgt	gtctcccatc	gggcaggaga	tttcgttttt	cgatttttcc	780
aaaaacaagca	gacctttcgg	atcacgggca	tcattggagcc	gatgccggat	aacgccatat	840
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tgccatcatc	agctatatca	atctgacctt	cgcgaggag	gcagccgcgg	caatgaggtc	1200
gccctcagaa	ggctctgggg	aagtaccgtc	tcgccatcgt	gcgcgcctc	tggttcgaat	1260
cgcttctgct	catctcctga	gcacgctgct	ggcgtatttc	ggcatgttcg	cccttgaacc	1320
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ccgaaatagc	caaaatcccc	ggcataacgg	gtatagcctc	acgcgtggta	ctccgctgaa	1740
cggaggcaac	aacaactctt	ccgataccgt	ggcaggcctc	tctccatgca	gattttctcc	1800
atagactccg	tggactgagc	ctgttcgatc	tgaagatgaa	gccccaacgg	cgcaaggccg	1860
acagcccgat	gcacccctct	atctcagccg	atcggcctac	aacgatttcg	agtagccaat	1920
ctgccggacg	gtgtcattca	ttggggcaaa	gccgggtgag	ctattattgc	ggcgatgctc	1980
ccgaggttca	cttcggcgga	ttcaaggagc	gcacccgagc	tatctcttca	tcccttatcc	2040
ccagtcatcc	gcctgggtctg	gtccgtactg	gtccgctatt	cggaaggggc	cgatccggag	2100
cagttgatca	aagcatacag	gccgtttact	cccgtattac	ggggcagccc	tataccaaat	2160
cctgcgttcg	gaagacatca	tagcctcgca	cagcagggag	gaacgtcact	tagcggtttt	2220
cttctcctct	tcagcattct	ggcattggtc	ggaaggtaat	gagcgtcttt	gccatggcag	2280
ctctgcgcac	tcgtcacaag	caaaagaaat	agccatccgc	aaggtggtgg	gagcacgcga	2340
agtgcagata	ttcagattat	cggccgcgcg	agcctgtgga	atctgctcaa	cgccttcgcc	2400
gggccactcc	cgtctcctat	ctgggtcatga	accgctggct	gcaaggctat	cctatcatgc	2460
cgatatgcct	tggtgggtat	tccccgcac	gcttctcttg	tctccgcagt	agccatgctc	2520
tccatgctca	gcatggccat	gaacgctgat	cgagcaaccc	cgctcgactac	ctcaaaaacg	2580

```

aataacaaaa acagcataaa aacgattgtc gtcactatgc gtacttattt caaatttcctc 2640
agcagaacaa actctacacc ttcgttaccg tattcggttt ctccgtatct ctgattttgt 2700
catcatatta ggcataatac tccggaacga aatgtccgtg gatccttcca ctggaagtcc 2760
gaccgcatca tatatgctct gctcggagca agggc 2795

```

(2) INFORMATION FOR SEQ ID NO:856

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1215 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1215

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:856

```

acctgtatct gtatatacctg atttttagttg ttttttagtca ttcaatctca cgtagccaat 60
tttatcggat aacataattc ctttttttct tcctgttttt gtatcattct tcaagcctct 120
aaaatataat catagcagat aatgaggtct cctgcataatg tattgaaaaa tcataacaaa 180
ttgcaatgat gttaaaattt tccattgaac gcaacggctt atacttttagt ctcattttag 240
atataagaga cgtagattat aaaaaccatt gcactctacg caaaattctt tacgaaagcg 300
aaaaaagatg tgtaataaaa gtaatggaag ctgccggggt gcactaactt tacattgtta 360
tgcagaacgt aggattaaga ctcaaacagg agggaacaga aaaggctatt ccttacagta 420
tgttgctgct tcaactgaatg tagtaccact acagtctatc ggatcgaagc cggaaataaa 480
tatttaagta ggagcttttc gaccggtact gtgaactttt ggaactgaat cccagagact 540
gttttcgaat cctgcaatgg aagaacgaga ccggattgct cttgagatgg ccgaaggttt 600
atagagataa tggagttggg ggtaacaatt atcctgccaa gattatgaat atcaatatcc 660
gacccggggc tccggacagt aaaatgaaca atagatatga tggaaagcga tgaaataaaa 720
agcattcaag aaaactcaaa gatattcagg ggggtgttatc ggagatacat ggttttatga 780
gagactgaaa aaagattaca gcccggtgga tgaaagcatc agtctggatt cgatatgctc 840
gccatgcttt tgaatgtctc tcctactact gtttaccgat gggagcaagg aatgagttgc 900
cctacacgat tctgagcagc ggagcatgtg ctatcgattc gacgaagtgt acgtggccgt 960
caaagtgtggc cggttaagag ccgcggattc aatcggatag aggcattaag gactttatcc 1020
gtctatcgga cggtatcata gaggggtggtg gttttgaagc aaaggaaaaa gaccctngtt 1080
catatcaagg aacaaatact gggaaagaac ggatgaaggg ttgnctttat tcaactacta 1140
tatgcctttt cttttcaagc ccgaagaaga aatttcaaac ccgctctacg aagacaaacg 1200
agctttcctg gtata 1215

```

(2) INFORMATION FOR SEQ ID NO:857

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1632 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
(B) LOCATION 1...1632

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:857

```

cattgcgggca cctatcagca gcaagccgat acctgtataa acgccatagg ccaatcgtct 60
ttgaccagct ccaactccga catcgctact catcgccctg ttcgcgattg tagctaagct 120
gatagatata ccaccctctg taacggacgg tttattgacc agtatagtcg cgctgtcgat 180
ctcgccattc tcagcgatag gtataacctg gagctgtatt gtttcggatc gggttctgcc 240
atcacagcga cagactgtcc gttaatcgta agcttcgata gggaaataca tggcaccgca 300
tgacacccaa ccgataacca cttcttgggg aaaatctaaa ttccagctct tactctggct 360
gaatgtacgg ctcccaatga cctgaattcg cgaagacaac ggagtctttg gtcacgacag 420
cagccgaata aggcagatgc gcaataacct gatctgccag cggctctatcg ttcccttgga 480
aggagtccga ctatggacag atgcgccgga cgagaatagg gaagagcctt gccactattt 540
tgcgtatgat catcaatttg ggagggtact ctgctatttc gaacttttta gttctatggc 600
tacggggagt tccaccattt tttgtccgt tggctagcc cctccactca ggatagtcgg 660
agtcggaata tacttgcat ctgtatgccg gatgtcggca gaagacataa gcccgaaaaa 720
aagtgcgacg aacaacccac gtgattcatc acgaaagcac cgtcacgaag gttcagtttc 780
agaccataag cctgtctgta gtaacgcagc ccagtacaaa gagcaaatac agaacagcag 840
caggaagtac catgccgata gcatggagct aagtcccaaa cgtgaatagg atgctgcaat 900
cctctcccca tttctgctgg gatttgtttg gcagcccat gatgactgca agcagcagta 960
gccaccgat agaagtcaga tggctatgtg gccagataga aaggagaaac gggccgaatt 1020
gcggcgtagt cctatcagtg gaatatgcc caaaacaaga tgccggcaag aagcaaactc 1080
ctccgaccag attgaaagga tacagcgaaa gctgtggcca gtatcgacct gcgatcacct 1140
ggagcaacaa acctacaaa gcaagtcctg atatgagaat atgccttccc tatagccgaa 1200
gcgtccctgc cacatagtg tgtatccgaa aaaatagtaa acagtcttag tgaaaagaac 1260
agatcagctt tatctattag accttatttg gctgctatca aaagacctt tccttttgct 1320
ttctacccca cttgggcacc actgtctcca agaacttttc tttgttcttg tgaacccatc 1380
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tcacccgtat agccatgacg tgcaagtacc gagctatctc tatacgtgct tgcacgcac 1500
gctccagccc gttgctgaga tacgtgtaat ctcttgccgt gcatggaatg aagctccatg 1560
agaagccatc catagtccca acgccactgt gattggcgga tatacttaag tatggggtca 1620
tttctcttt ct 1632

```

(2) INFORMATION FOR SEQ ID NO:858

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4578 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
(B) LOCATION 1...4578

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:858

```

ggcttgccca gccggaattg cgctattggt tctgtgagaa attcaatggg tgtttatcgg 60
acttcatggc catgtcgggc aaatgaatat cgcaggggaat cggtcctcc tgttggttcc 120
attcatccta agagcgactt cgacgatcca ggtatcatcg ttatcaagga tggttctatg 180
gcggcggtat cagtatggcc gtcagtggat cttgggcaat cattggaatc tggaagcgag 240
tatcgtggtg gttatattca cttcgattat gacaagtatc agtgtgtaga gtgtggaaga 300
aagttggtgt tgacaagaag gccgattact ttggcctgac gcggccactc tttcgttaat 360
ctatctgttt aagtaattcc taattaataa ataactctca aaagaaagag gcttttaata 420
tgaaaagaat acaactaact ctatcgctct cttcgccgct gttgccggtt tggtcgctca 480

```

aaatgcttac	agggagtaat	ttcatataaa	atctcggttg	acaaaaccgg	aaacaaggtg	540
tactgaatgg	tgcggcagat	atgagtaatt	taaagctcaa	gagcactcga	tgatcattgt	600
tacgcctatt	cttcggtcag	aagatgggtac	cagccggtgg	aatttccttc	ggtagtcatt	660
acagggccga	atagaacaaa	agctctaagc	gtgaaatcgc	atttagttcg	gctttgcccc	720
aagcaaaaaca	tgcagtcaat	acattcgccg	tcataatggg	aagagcgagc	agtttgcttt	780
tacagagAAC	atgcttatgc	atcatggatg	atggatgcca	agtttggtgt	tcggaggagg	840
tacgaggttg	tgctaaatgc	cctgtaggtc	tctcgagtaa	tatgttcctt	ttgatccact	900
cttcaatccg	gcagaggctc	cttatttggt	gcacacatta	ctccggcaga	agaagtggaa	960
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ggtgcgtaag	tatggcaaaa	cattgcgaat	ataaccactg	aattcgccgg	tgaagatttg	1260
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agaacttagt	gaggccgaat	gtaccgtgtg	gcaatgtctt	atcctgaggg	gcaccaagag	1560
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caacctcgat	atgtgcttgg	caaaaagtaa	gtggagtttt	ccatattgat	tattaagggtg	1860
cacgggactt	gtgtttcggg	gctctttttt	gtggcaaatc	aagtcgcgat	gatcaatggt	1920
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cgccagttca	acctgatgtt	tgcacggaga	tgggctctac	ggccgacggt	gccatgaagg	2880
tatatcttgc	tcggaaacgg	ctcaaggcat	atctgtcaat	ttcctgaatg	tgcagaagac	2940
ggacgaatga	agatcccttt	cggaatttgc	cgatcgggca	aggctttccg	aacgagatcg	3000
tagcccgctc	gttcatcttc	cggatgcgcg	aattcgaaaa	atggagatgc	agttcttcgt	3060
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cgccgacctc	gcttcgagac	gacaaatacc	gtttccatga	tcatgacaag	ctggcacact	3180
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actggatcgg	atgttctctg	cattctcttc	ggatcgtatt	gcgaagaaga	gacttccaac	3420
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atgcaatcgg	tacccctttc	tgtatccggg	agatcaccaa	tcgctcgaag	acaataccgt	3660
gaccatccgc	tatcggacac	gatggagcag	gagcgtgtgg	agatcagccg	tttgaatgct	3720
attactcgga	atatgtgaagc	ctcaagagct	tgtcctaaaa	gatagacctc	tgaaacgaaa	3780
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ctatgctggac	agcaccaact	caagaaagta	tctgttgatg	gatcgaccgc	atacgtttac	3960
atgcgctggg	aacaaacggt	acgggtacag	agcatccgat	cgccacctcc	cgtgtggagt	4020
ccactaccaa	acgtatcgtt	tagtaagaaa	tatcatggta	gatggaaacta	taactccgaa	4080
aagccggcac	gtatcacact	ttacaggaat	gagaagataa	gtcgatcacc	ggcttccgta	4140
ttgcttttga	gaatatgggt	atcgggacga	gtgtgagttc	atcgctccct	ggattttagc	4200
ctatggaagc	aaagcgtccc	tgcacgcagc	gcaaatctcg	tacccatccc	ctcctattcc	4260
gcatacgttt	tatcgtaaaa	ctaagtggca	ttattcctga	agaagacaag	aatgaaagcc	4320
gatccgattg	aaatttttagt	ttcgaatgac	gatgggttttc	ggcacagggt	atccgcgagc	4380
tggcagaagc	cctgcgccca	ttagggaatg	cacgatcgta	gctcccgcag	ggccacgatc	4440
cggggcttcg	gctgcccattc	ctctactctc	cccatcaagc	tcaagcttcg	gcacagagag	4500
gaaggctaac	ggtatacagc	tgtacgggga	cgccggtaga	ttgtgtgaag	ttggcgagaa	4560

cacagtcttc aaggagcg

4578

(2) INFORMATION FOR SEQ ID NO:859

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1391 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1391

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:859

```

ccacagacca aatgggggatt gtagccgaac tggtattgcc ataacgctca tattgaccat      60
cactttctca tatgggactc ccatacgtcg ggcaacggat cgatgattcg gaggttggcc      120
tgatgaggta ctaccaagt aatatcacgt gcgaaagatt gttgcgctcc atgatctcca      180
cacagctgtt gcacattcta cgacagcatg tttgaagact acctgccctt cctgatacac      240
ataatccaac gattatccac cgtttcgtgc gtagcaggac atgccgatcc accgccttca      300
tgatcaaatt atctttggcg atgccattgg agtgcagcac agctccataa cgcctacttc      360
ttcttcggta gcctcgagca aaacacaacc gggccatccc cgaatagcgg acaagtggct      420
cgatcgggat aatccgtaaa actgtcatct tctccgtagc gatcacaagg atcttgggaat      480
aacgccccga cggataaaat tggctcccac ttcaagggca taaataaacg tgggacaggt      540
gctgcatat cgaaagaaaa gatgtcgcca caaccgattt catgagcacg atgctggccg      600
tggaagggaa atgatagtgc ctcgagttgg ttgcaagatc aagccgtcga tactcttggg      660
atcgatacca tgacgttcga agaggtttgt gccgcacgga tggccaaata ggaagctcct      720
ttattcttgt ctcgaggatc cgacgctctt tgatccccac acgggtcatg atccattcgt      780
cattgtatca accatttttt ccagatcgtc attggtaata acatcttcag ggaataggcc      840
ccaacggctg ttatagccgc gtttatttta ttcataatcg aattgttgca taatggacgg      900
gcaccggccc tttttaaaga ccatatcccg cggaaaagat tatttgtggc cgctaaaata      960
aaaaaaaaagt ccaaagaac ggtctaaggg actcttttgc tcgttcttgc cgcctaagcg      1020
acgaccggct cgaccgagg caagcaattt ttacactgcc acttcttttt cgattgccac      1080
ttaccgcggt agtagccaca atcaccacat actgtgtgat agatgtgcat gctccacaat      1140
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cgttttggac tgtcttcttt taggagtgcc atttttatatt atttaaattg ttctttttgt      1260
tccaatagtt ttccagagaa tcccacctcg aatcgtgagc ggtcataccg gattcttctg      1320
ttgttcacgc gcatctatcg ccagcagatc ggacattcga ttcatcatct cgggtcgcac      1380
tctccatccg a                                     1391

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(2) INFORMATION FOR SEQ ID NO:860

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 723 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...723

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:860

```

gacgatgctc cttgctgata atcgtagcca taaggttacc gccgaaagcg gacgtgtcat      60
cagcagattg cgttcgtcac cgatctcaag cgatgtacgt ctgctgtaag acctgtacgc      120
aagcgagaag agagacgggg accgaggcgc gaccaatagt cgtagcaccg aagagtacga      180
tctcaggctt cttgtctgaa gaatttgggt aatggcctga gcgtaaggct cagtaaggta      240
gttctgagct tctcatcgtc tacgacaagc accgtatcgg caccggcagc gatagttcct      300
taggcaagtc agcaacctta tagccacaaa gaattgccgt tacttttctc cgatggtgtc      360
tgccaattca cgagcctttc cgatgagttc gaggctacgt tctgaatcac tccttcgcgt      420
tggtctgcga agacgaaaac actttatata attccttacc catagttgct tgttggttcag      480
atgatgaatt ctctttcagt ttattgaaga taatgtcagc agcttcttcg ggagtgtatc      540
ttcatgcagt gctcccatgg ccttggtccc cttagtgaac gacttcttac gctcgtggga      600
gaaccggcca aaccgattct ttccggatca acatcaagtc gcttgctccc cagcactcaa      660
taggtctgtc gaaggtttcc ataatgcacg aacgcgcagt tagcgaggct tattagccgt      720
agc                                          723

```

(2) INFORMATION FOR SEQ ID NO:861

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3052 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...3052

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:861

```

agccactcac taatgatacg ggttttatca tactcgaaac catatctgtt ttacaccgt      60
ctttcaaaaa ttgtatttca aaagaagttg gtttttgga gattcccgat ccaacataaa      120
cgggtcgaaa cgaagagtat cctgaggttc aattttacog aatccaatac gatgctacgc      180
attttgacca aagcaaaaaga gcattgcttt ttccacttga attggctccg tataaaacgg      240
ctgccgaagg agtttgtaag ctcttttctc aatgacagat ttggaaagtt ctttatggca      300
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ggaaagtgcg gccgcaatct tgaaaaagtc gcgccaaaat tttttcgttt ggttcggggt      600
ttgaaaaaat ctgcgcgcgag agcggaaatt ttttcgcccc cgtttttagg aatagcaaac      660
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atcgacttta ccaacggttt ggccgcaaca acgaaggga tatcctggaa aacttctgct      1260
atgctttttc caccgcgatg tacttgattc gatgcagatc ggccggccgg tgatcgatgc      1320
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gcgactcgct	caacattcca	cggccacagc	ggacaccttg	cggatggcca	agccgaaagt	2040
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ttacggattc	gatccgatca	aggataaaca	aaacaagctg	aaggagaat	caataacgga	3000
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(2) INFORMATION FOR SEQ ID NO:862

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2812 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2812

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:862

atatattcct	tgctcaggag	ggtgccgcaa	agctcccgga	agactttgac	ccacaaccat	60
ccgttacgca	tttgacgatt	ttgggaaaca	cccgtaacca	tcgttcccgc	atagcgggca	120
gcggttaagt	ttgtaatgag	catccgtttt	ccggcggtcg	tcgtcagcag	ttcttcgcat	180
atttgacggg	tataaattcg	atgctcttcc	cgaatgtccg	ttcgtccatg	gcgcctgctt	240
caatgcagcc	agagcgactt	cccattgctc	cgctatttcg	gcgtcggcga	ttctcgtccg	300
gcgaccagtt	tatagacgga	aagacctttt	tcggtcggga	taacatcttc	ttctcccggc	360
ggatatattc	tcgcaggatc	aatgtctcga	tgtggccgca	cgtgtggcag	gcgtaccgat	420
gccgcaaccg	gcgagggctt	tcgggcttct	tcgtccgcaa	cttcccgtcc	ggcgtgctcc	480
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gtttctcctt	cttctacagg	ctcttccatc	gatccgcgat	ggctttccag	cccgaactaa	660
cccgtctctt	cgcttttatc	ccgaaagatg	ctccctttga	gagagtatcg	ccgtcagcgt	720
ttcttcgatg	gccgctcgga	aaaggattcc	agcatacgca	cggtgaccat	tcggtagagc	780
acctttcgtc	gcggtcagg	ctgtcggact	tttctccggt	aaggagaatg	gcagggtggtc	840
ggttactttc	gtactcgtcca	cgctccggcg	gttaagtgtg	ccgcagttag	cttttcgacg	900

taatcgccat	aatcgggagc	atctttcaga	cttctaatag	cgaagggatc	tcttcaaaga	960
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gctttgggca	gagagagcgt	cttttcgcgc	gtatatccgt	atcgcttggt	ggcttcttct	1080
gaagggcagt	cagatcgtag	agtaaaggtg	gtggcacagg	attcggtgta	cggaaacgga	1140
cgaaacgatg	agtgcctcgc	gcggatccag	atctttatcg	ccctgtccgc	tgctctgcgg	1200
ctttcgtatg	tcgtttctcc	gatggcctga	cggagaggcc	ggtgggcagc	gcatggattt	1260
tccaaaacgg	tacgaccgga	aatcccgggtg	ctcgatatag	cggcggcaaa	tcatcgacag	1320
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gagctgatcc	acaggcggtg	aaagggtttgc	ggcaatccaa	ataagcatag	atcaggcgga	1560
agatcaaccg	ccttcgcgtc	cggcgctcgtt	ggcgacgatg	atgtgatcgc	ttcgggtcaaa	1620
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gattgaacgt	agcctttgaa	gggttcgccc	ttttggggg	tcagctccac	ctgttcccca	2700
gattgcccga	atgcagcagc	gtcgtttttt	cgctctcgct	gaaagatagc	ccatataggg	2760
aaaatcgagc	cgcggctctt	tgccgatgct	gtgatggcca	gccccagact	gc	2812

(2) INFORMATION FOR SEQ ID NO:863

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 752 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...752

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:863

tctttgggcg	gatacttgaa	tttgaaattc	ctcggactct	tgaactgcag	atgtagtcag	60
ccttcaagtc	gccatattcg	ggatccgtca	gatctcccgc	agcgtatagt	tcgttcgggt	120
gtaaatatcg	cccatcggtg	tcgtcttaca	gaaaattcga	gcgtatccac	tctggccgaa	180
accggatccg	aaggagctgg	atagaacctc	cgatcggaga	cagatcatca	tcgcaggcta	240
ccgtgggaga	gccattaacg	aaaaaacaag	aagaaggat	ctcttcataa	taatgtgaat	300
cggtgggttt	gcgtggaaa	gcagataatt	aacgctaate	gctcctgcat	attgtttttt	360
acggcgagtc	cgggcagaat	gagacaaatt	agtggccgtc	aaaagatcgc	tatagaagtt	420
atcgaaagct	ctttcatagt	ctctttccct	tggtatggga	ggaaagcctt	cccctccaaa	480
gaggatatat	gtcgggtcagc	tccggtgcta	tggtctccga	tccctgaatg	acaccggctc	540
atatcggatg	gccagacggg	tcaaggccaa	atagtcggac	gactgctcat	tacggacagg	600
tcatcggggc	tgatcttgct	gaatccgagc	ttaccgagag	ggtctccggg	atcactccct	660

gtccggcatc atcgtagacg gagtagccac ttttgctttt tgcaggcaag gatcgtccgc
 atacatcttc ttcagtacag gcagccaacg cc

720
 752

(2) INFORMATION FOR SEQ ID NO:864

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2989 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2989

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:864

gatgcggctc	acgggacgta	tntntccgga	gagtcgcgact	tgcgccgtct	gcatacggcc	60
ggcgggataa	cgatgtccag	actcgacgcc	agcactgcga	gataacggcc	agatccgtag	120
ccggatcggc	tattttgata	cctccggaat	gttcagaaac	acatccttct	gtatgagctt	180
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tatcgggcga	atgccctcca	tcgctacggc	tatggctatg	ccatgaggtc	ttccctattg	360
cgtgtgatga	gatgttcgct	cggattctcc	acccacgcag	accgtcctgc	cgcatctcgt	420
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atgatgctta	ccccgtcgaa	gagaagcacc	gtatccacta	tatgctccag	caccttcggc	540
cggctatgct	accttctttg	gtgatgtgtc	cgatgacgat	gacgggggaa	ccgtagtctt	600
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gccatttggc	gtatttggtt	ccgcacgaac	ggcagagtag	atcgttttct	ccttagccat	1200
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gtgcaggaat	ccttggcgga	gactatggcg	cggctgcggc	ctacgggttg	gaaagcgcag	1560
tcgaggtgag	caccgagcgc	atgggatcgg	tgctcgtgctt	gatcagctct	atcggtagat	1620
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acaatcccaa	atggcgaaaa	ggcttcggac	tcgcgggcac	gatcggctat	caggttcgat	1860
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tggcatcgta	ggtgtcggga	gagcaggtgc	tccgccggtc	gaatccggca	accccagtac	2100
gacagtggca	agggagccgt	ttcgttggta	acgtgtggta	gtatcttcat	cattagattg	2160
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cggtcggatt	gcgtgcgtgt	tttggcgaaa	acacgcgcga	gaaatttttc	gttttggttc	2400
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aacttaatat	caatatcaac	aagaggatac	agcgatgaaa	ttctttatcg	acacagctaa	2640
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attcgcgagg	gcgaggagtt	ggcgctctgc	atccgcagat	cgtggttaag	gtgccttgca	2880
cggccgaagg	ttcaaggcta	tcaaatactt	cagcgataag	ggcattcgta	ccaactgtac	2940
ctcatcttta	ccgtaggcca	ggccctgctc	gccggggggc	cgagtccaa		2989

(2) INFORMATION FOR SEQ ID NO:865

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 807 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...807

(xi) .SEQUENCE DESCRIPTION: SEQ ID NO:865

gccgggaatt	tgtctcccaa	ctccttcaac	tgcttttccg	tctggaagac	atgctgtcgg	60
cctgattgat	cttgctcgata	cgttctttct	ctttcttact	gcttcggcat	tggcctgcgc	120
ctcttccttc	atgcgcttga	tctcatctcg	gacaaaccgc	tggaggcttc	gatgcggata	180
ttctgcttct	tgccggagct	ttgtcatgag	ccgttacatt	caggataccg	ttggcatcga	240
tgtcaacggt	acttcgatct	gcggtgtctg	acggggcgcc	ggagcaatac	cgtcaagttg	300
aaacggccga	tgtctttatt	gtccttagcc	aaagaacgct	cacctgaagt	acatgaatct	360
ctaccgaagg	ttgattgtcc	actgctgtgg	taagatttct	ctcttcttcg	tcgggatagt	420
ggtattggca	tcgatcaagc	ggtcatacag	cctcccatag	tctcgatacc	gagcgacaag	480
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ttctccaca	ttctcctgaat	agcaggaata	cgtgtggacc	acctacgaga	atcacttcat	660
cgatatcgcc	acgtgacata	cgggcacttt	caaggcogtt	tcgcagggtg	ccacacatgc	720
ctgaatcaga	cgatcgccaa	ctgctcgaac	ttagcccttg	taagcgatcat	caccaagtgc	780
ttgggatgcc	gttcaccggc	atgatat				807

(2) INFORMATION FOR SEQ ID NO:866

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 746 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...746

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:866

gattagtttt	tgtttcattc	gaatgaggtg	gtttttgtat	ttggagacaa	tagttacgga	60
gccaaagcgg	gaacagacca	ggaagcatcg	ggccggagtc	gtacaggaag	cgatcgtgca	120
agcggctttc	gcgcccttgc	caaaatttat	tcgtaccggc	ttcacggcaa	agccacccca	180
agtgtcagga	cgtggccagt	ccgaccggca	tatttgagcg	actccttcat	gaattcctgt	240
acgataaaga	acgccccggt	ataggacgac	tctgtggcga	aatgcgcgcc	cctaccgact	300
tttgtacgga	cgtgtagcaa	aataagcatc	gctaagctcc	ggcctaaaat	acgtacatcc	360
ccctccacat	gtatctgacg	ctccagttcg	tgcagaggaa	tgtgagacag	acgtgcggat	420
tggcagccat	ttgctgcccc	tgcgactctc	atagttgctg	tagaagataa	attcgttggt	480
cataaactcc	tgagcaaaac	ggttcgcgta	ctgggatgac	cgtcaggagt	agccgtccca	540
cgataacggc	tgtaggctca	tatgttttgg	cttcgaccgc	atcttgacc	atctggtgac	600
aagggtcga	ggagtaggtg	tcagggtcgt	ggcgggaagg	ttcgttgta	tattcccgcc	660
tgatattttc	gaaatgtaa	tccatgtttt	gnggntttta	ttgtccggac	aaagttatgc	720
cattggaatg	gtcgtccaaa	atcctt				746

(2) INFORMATION FOR SEQ ID NO:867

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 3082 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...3082

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:867

tgcttaatag	tttccataga	gtccgtacct	cgttttttgca	gacgagaacc	agctctttcta	60
tagaaggagg	caaaaataaag	atagccaatg	ccctatctca	taatatctct	tgatgctctg	120
tgctccaacg	acatcaacgt	cgaaaataca	tttttctctt	ctttcaggat	ccgctctacc	180
tcacttttga	gcgtgcatag	tatttgtctc	tgtacacctc	ttcgtactct	acgaattcgt	240
tggccctatt	cttcgtctga	attcttccgg	agacaagaag	taatactctc	gtccttctgc	300
tcttctccac	gaggtgcacg	gctggttgca	gaaatagaga	aataagggtta	agctctctgt	360
ccgtaagaag	tcgttcgata	acggtgctct	tactgttccg	gatggggccg	agatgatgat	420
tagtttggtc	atgggggaatt	tgtctaaata	tgtagtggaa	tggctataat	acgttcagta	480
cttgctcttt	atctgttcta	attcgtcttt	catctgcacg	acgatttgct	gcactctcaa	540
tgattgcttt	tggagccgag	cgtattgatt	tctctgccga	tttcttgta	atgaagctga	600
gttttttccc	ttgtccgggc	tcgccttgca	tggtttgaga	aaataagaaa	gatgattccg	660
caagcgatgc	ttctcttcat	ttacatcaac	ttttcgatat	aataaatcat	ctcttggtcg	720
aatctgttct	tgtcagagtc	ttctctgata	ttttggttag	gttctcttct	atccgctctt	780
tgatcggttg	atcctatcgg	gttcatactg	ttcgatttgc	agaagcaaag	aaggatatta	840
gatattttct	ccgtgaacac	ctgctccagc	atagaccctt	ccgctcgcgg	aatccgatta	900
gctgatcaag	ggctctccga	caagtttcaa	tacgacagcc	cattcatctt	ctggaatttc	960
ttcttcttta	tcttcatcta	ctgaatgact	ccggggatcc	gaagtagctg	ttcgaaccat	1020
cctcctgcgg	tacttccact	cccatctttt	cgccgaattc	cttgagttgg	aagaaataga	1080
ggacatcttt	tctgtatcga	atatctgaga	tacaacatcc	gtactacgga	ttcctcgaga	1140
aacaagctga	aatccacttt	ccccggtccg	atgtcgccga	aaccaaagcc	ctgagaggta	1200
gttctctatc	acggtaacgg	ctggaatctt	ggttgataga	tcgaactggt	tgctattgag	1260
cgacttgatg	gtcagagttat	ttttttatcg	gcgaattgaa	tcgtatgctt	gccgaatccg	1320
gtctagatag	gatcatagtc	ttttttatat	gcggttagga	gagaaaaaat	aaaagagaaat	1380
cacagactat	tctataccat	agtcggtgat	tctctcataa	actttttaca	ggttacgccc	1440
gtggcactgt	ttgaactttt	tgccactacc	caaggacaag	gatcgtttcc	cccgatctta	1500

ttctcggttc	ttatcggtgc	tggggagcag	ctgcaccctg	aggtctgctt	gccgcacccc	1560
tttgtgcttc	tgctgggctt	ctatatcgtc	tttttggtgc	cgatacttac	tcattgtcgta	1620
cgttgttcgg	ctgcatgtcg	gattttctatt	tgcgcgctgt	gttccactct	tcttgggaag	1680
gagcctccgg	taccgggtac	cgagcacgca	ttaggtcgct	acggctctac	ggttcatggc	1740
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ttttcgtagc	tggattctga	acggaattac	gaagctcgtc	catctcacgc	agatgttctt	1860
tcaagactca	tcgatagtat	gcagtacgat	agctttctca	aattctttga	tatgcttttc	1920
ccttgagttt	catccgcttc	acgcaaattg	catcctatgt	atagacacgt	ttaccatccg	1980
taatggggat	tagaatgcgc	tcgtacacgc	ggcttgggtc	tcgaatacct	gatgaaccac	2040
aggtggggcc	acttctgcat	cagatccatc	ttacgttgga	aagacttgta	agcttcacgc	2100
aaaagcaatc	ggtcagctct	tctgctttct	tacctctgaa	tatttcttgc	gtgatagaga	2160
ttctatcgcg	agtgcacgca	tcagatcttc	cttgaagcct	tcgaatcatt	ggcttctgca	2220
taattgtcaa	tcagagcctt	acatacgtcg	tataggtatt	gagtacatcc	ataccgatac	2280
gctctcccat	caaagcatga	cgggacgggt	ataaatgact	tcacgctgcg	aattcattac	2340
atcatcgtag	tcagcagatg	tttacggata	ccgaagttgt	tctcttccac	cttcttttga	2400
gacgtccac	ggacttactc	agcatgttgt	tttcgagcac	ttctccttcc	tgaaaccta	2460
acgatccatc	aatgatgcaa	tcttttctgt	ggcaaagagc	gcacagatg	atcttcaagg	2520
gaaacataga	atatggacga	accgggatac	cctgacggcc	ggaacgacca	cgaagctgtc	2580
tgtccactcg	tctggatcgt	gcctttccgt	accaatgata	gccaaacccc	cggctttctt	2640
aacctcgtag	agagcttgat	gtcggtagca	cgaccggcca	tgttcgttgc	gatggaacag	2700
ttcctttctg	accggcctga	gctacaatct	cggcctcctt	ctgagcaatt	tggcattgag	2760
tacattgtgt	tggatgccac	gcaagcgtaa	catcggtcca	acaattcgga	tatttccacc	2820
gaagtagtac	cgacaagtac	agtctgccct	cttcgacaag	acgtacaatc	tcttcgataa	2880
ctgctgcata	ttttcacgtg	cgtcttata	gatacgatca	ttcatatcct	tacgggcatg	2940
ggcttgtttg	tcggaataac	tacaacgtcc	agttttaga	tgtcccaaac	tctcccgctt	3000
cagtttcagc	agtaccgggtc	atccctgcca	gcttatgaac	atgcggaaat	agttctgcaa	3060
agtgatagtt	gcaaatgtct	gt				3082

(2) INFORMATION FOR SEQ ID NO:868

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 470 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...470

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:868

ggccactgtc	gtgaaatctg	ttcctccggt	cgggtgctat	gggctttatt	tctccattgt	60
cgggtgtgat	atctttacgg	gccttaccgc	tttcgatgga	acaaaatcaa	gcagatgctg	120
gctcaaaccg	aaggattcga	agagggaatg	tagttcgcaa	agtagccctg	atgggagcct	180
tgacgctcta	tctggattca	tcaatctttt	cctctatctg	cttcgcttct	tcggccgaag	240
ggactaatcc	ctcccatgga	aaagacaaag	acaataataa	aaatccctgc	caactggatc	300
gttggcaggg	atttttcatt	gaaacaccgt	tagtcnatag	atctcntaca	actacattga	360
cgatcctccc	ggggactaca	atgacttttt	tcgactcttg	ccttccancc	aacgggctgc	420
ttccgggaac	aataaggctg	ctgctctaca	tcttctttgc	tcatatcgga		470

(2) INFORMATION FOR SEQ ID NO:869

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2989 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double

- (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...2989
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:869

ccgtggctca	aaagctcttc	ccagccgcgc	tcggtgttgt	cttccgcttc	tctaccggat	60
tacgcagggc	acgatcccc	ccggcgatca	gcccgatgcg	aatgtggggg	gcataaccgaa	120
tgtgggagga	atctccgaag	catccagacg	cccaagcggc	cgctgggtgc	ggctcccatg	180
tagaagagtc	gcccacctgc	tccatgcgtg	gtatgatttg	ttcgaccagt	cgttcgatca	240
tcggatagtc	cggctgacgg	cttcggccac	tttctgtcc	tcgcggttga	tgtctcgagg	300
atctctctgg	tcgaactttc	ttccagtcgg	tcgtacaggg	aagctgttcg	gtaatcttct	360
caaacatgat	tgttgtgtg	atattgtata	agccctccat	cggactttgc	agtaccgatc	420
cgagcgttaa	gcctcttttt	tgatgacgct	actcaacact	tcccagataat	gaaaggctac	480
agagccgatg	agtggagggg	gagatcagga	cgattgtatc	ggagcacggt	gcgcacaaga	540
agtcgtcgaa	actattctgt	acaaggctat	atacagccgg	aatgtccaat	gctgcgcgat	600
aaagggggag	aatccggcca	agaagcgatt	ggggaaagct	ttcgatagac	actctcgata	660
atatcggcag	acgtcaggcc	atactctgca	ggaaagcttc	gcacagcccc	tccggcatct	720
gccccttgag	aaggcgccga	tgaacagccg	tcccaatacg	gctccgctcc	cttcatctcc	780
gaggtatagc	ccagtgggga	aacgtttggt	ttgatctccc	gaccatcgaa	cagcaggaat	840
tggagcccg	acccaatatg	caggctatcc	cctcggaatc	gcacagagag	cacgggctgc	900
accgagcata	tcgcccggcg	cttcgatgcg	gcgcagtggt	gcagcatact	gtccaaggct	960
tcatttagca	taggggcttt	gccggtgtac	accctgcacc	gtagaaatat	acagctcgga	1020
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ttcctatcct	gctgaaatgg	attgatacct	gacgtttgga	atcgctccagg	ctttttccct	1140
ccttgcttat	gcaccaatcc	gtcttggtgg	aaccgcgtct	ccaatcagaa	tcatgatcgt	1200
atctcttttt	tccggtctaa	caatgcaggc	ctatggcggt	aaagaaggca	ttgaagatga	1260
ggagtctgta	actgatttat	agccgcccga	ccattgctcc	gaatggctct	ggagaatgta	1320
gcaagcaccg	gagcaacaag	ggctgccaga	gggacgtatc	tgtcccgtac	tgccttttgg	1380
tggcgatgcc	gaagaaaaac	agtcccaata	tcggcccata	atgtaactgg	ccagtacgta	1440
gacggcatcg	atgacgctcg	tgttgcttac	atattaaaga	agtatatgac	cagccccatg	1500
acgacagcca	tgccgatgtc	acgcgatggc	gtatacgagc	cgattgctct	tcgcttcggg	1560
ggctgtgtct	tggaggatgt	ccagcgtgaa	cgaagtagtc	agagccgtea	gggcccagcc	1620
gcttgacag	aaagccgacg	acaccagtcc	caatatgaac	aggatgctac	aacaggcgga	1680
aaatagctgc	ccgtggccaa	gagtgggaat	agctctcgct	ttggacggat	gggggagccc	1740
gtggctgtcg	gcataggat	tagacaggg	accgagcatg	aggaagagtg	ctatgatgaa	1800
gaactgcate	acgcgcgggt	gaggacgttc	ttctgcgaat	cgcggtagtt	cttgacagctc	1860
agttgcgctg	catcatgtcc	tgatecaacc	ccgtcatagc	tattacggtg	atacgccctg	1920
cagaaaactgc	ttgaagaaat	agcgtttgtc	gttcacgtca	cgaagaaaaa	catacgggag	1980
tagtcgctcc	cgccgataag	gtcggctcgcc	ctccccatct	gtcgcaccaag	tcggcagaaa	2040
tatagacgat	gcagagtaga	ccgagacgat	gaggcagagg	gtcttgaacg	aatcggtcca	2100
gatcagcatt	ttactccgcc	cttgaacgta	tatagccaga	cgaagagcat	cgtcagcaca	2160
cattggccat	aaaaggccat	ccgaacgggt	cgaatacgat	cagttgagcg	tcaggcatac	2220
gagaaaaagc	cggacagccg	caccgagcat	cttgagatga	agaaaaacca	tgcccccgtc	2280
ttgtaggacg	agaatccgaa	ccgtcttgca	agtagccgta	aatggacatc	agattcatcc	2340
ggtagaagag	aggatcagga	cgaaggcaat	aatcagttgt	ccggccacaa	agcccagtac	2400
ctctgcaggt	aggagaatcc	gctgccggcc	accatgcccc	gcacgggatac	aaggttactc	2460
ccgatatacc	ggagccgatc	atggcaaaaag	ccaccatgtc	cacggggatt	tgcgattgcc	2520
cacaaagaag	ccggcattat	ccgctttggg	cccgtagaca	aggaaaatacc	gaaaagggaag	2580
acgaaataga	cgataacgtc	agaatagcta	cgagaggact	catatcaaat	cattgagacg	2640
ttaggacagt	atcttcttaa	actctctgca	aagctacgga	aatacgtcaa	gtactcgcaa	2700
ccagcataac	agacttcccc	gtgagttgca	tggctgtgct	agtgaatat	cttcagcaga	2760
cttcgggcta	caccataggg	gttgctgggc	tatctgtaga	gcttgctcag	ccacggcgta	2820
gaggccggat	cgttatactc	taggcttatac	tcgttatgtt	ctaagggaatt	cctcggtatc	2880
ccttacggat	ttctccctac	gctctatagc	tcatctccat	acgctctagg	ggatagccaa	2940
acacaccgtt	cagcaaggaa	aagagggggcg	aaaaaaactg	taaaaacgg		2989

(2) INFORMATION FOR SEQ ID NO:870

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 362 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...362
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:870

tgggttaagc gtacatatat acaaaggtag cacagttttt aattaacttg cgtaatagcg	60
tctgtaaaac agattggcta aagatgttat ttgagtcttc tttgtagatc gaaaaaagat	120
atgaaacaga cttttcgctt tatcaaacia ttgaacggat tactcacctg aagccgaatg	180
ctacgatgat gttgttttgg cttcggtggt ggacgtcatc atggctaata gttcgttgag	240
tactactatc atgaaatttt agagtaccct atcaatctta cgatcggagg tcataggtct	300
tttctcatca tggagagacc atgaccttgc tccagtttgt gaagatgtgc tgatgggtcat	360
tt	362

(2) INFORMATION FOR SEQ ID NO:871

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 911 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...911
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:871

agacgtacat tcacgggaaa ccattcatag cacggaagat accctgaagc ttcctgctga	60
taaggcagga tcttggccaa agcacgtacg cgaccttcgc cgtctcgctc agaatacttt	120
cgcgcattggc tttgatcttc tcgccttgaa gaacatatgc tccgtacggc aaagaccgat	180
acctacggca ccgaagtgcg agctatctcg gcatcgtgag gaggatcggc attcgtagca	240
acttttagctt ggcatactta tcggccaaag ccacagatc ggcgaaatct tgatcatttc	300
ggcggctttc gtctccacct gtccttcgta tatctcaccg gtaaacctgt gatggagatg	360
tagtcgcctt ctttgaagag ggttccatcg attctacggg acgtgcctta tagtcgatgt	420
tcaatgcacc tgctcccgat agcagcattt gccataacct ctggccacta cggcagcatg	480
cgaagtcata ctccgcgagc cgtcaggata ctttcggcgg cagacatacc ggccaagtct	540
cgggcgaagt ctcgatacgc accatcacca cacgcttgcc atcctcttcc actgagcggc	600
atcgtcggcg aagaaaacga tctgacctcg agcggcaccg gcgaagcagg caagcccttg	660
gtcagtagac gtgctctaag gagagcgact tgctcgaaaat ggggtggagc aattcgtcca	720

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gcttggttagg ttcgagcgca taagggttc ttcctcgctg atcataccct gacgcaagag 780
atcctggcgga tcttcacccat ggcacaaccc gtacgcttac cgttacgggt ctgaggaacc 840
agagcttacc ttcctgtacg gtgaactcca tctctgcat atgcggtagt gatcctcagt 900
ttctgctgca g 911

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(2) INFORMATION FOR SEQ ID NO:872

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 759 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc feature
 - (B) LOCATION 1...759

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:872

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attatattcc aaaacgtaat ttctcctacg aaaaggggaa gcaagtactc gcaatgtatc 60
gttcacggcc aaacaaggag aagtcacagc cctcgtcgtc cgtcgggtgg aggaaagagc 120
acatcggcca agttggctgc acgctttggg atatagatgg aggaaagatc tttttgggag 180
gggaagacat ttcgcaatcg aacccgaaac cctgctacgt cattatgcca tcgtcttcca 240
agatgactgc tcttcaatgc atcgggtggcc gataatatcc gcataggtaa acctatgcta 300
cagatgaaga gctcaaactg gtagctcggg tggcaagatg cgagaatttg tagatcgtct 360
gccgaatgga tatgacactt tgatcgggtg aatggtgaga acctttcagg aggtgaacgt 420
cagcgcattt ctatagccag actttactca aggatgctcc gattgtgctg ctggatgaag 480
ctacggcaag ctcgatgttg agaatgagac actgatacag gccgggtatat ccgaactgac 540
aaaaacaaga cagtcctcat tatcgctcat cgtatgcgca ctgtagccat gcccataaga 600
ttgttgact caaagaaggg actgtagccg aatgtggagt ccggccgaat tgatggccat 660
gaacgggtgtg tttgctcgaa tggtgggcg cagaagtaag gaaacgtgag ttcgatgtaa 720
gcgatatggg gccgatctca taagatccgc catatcgat 759

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(2) INFORMATION FOR SEQ ID NO:873

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 671 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc feature
 - (B) LOCATION 1...671

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:873

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gggaattttc aagaaaccga ttaaaaacaa attaatcggc ggcacgcac ttctcccgat 60

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agcctgctct attcgatgcc cgatcacaga agtctgacgt cgggggcagc atccgctata 120
atcctgcacc ctattatcgt ttggacagga cggacgtaag cggatgacg gggtcggtac 180
acgcgctccg ctatttggt cacttaccgt caagccatac cgctcggacg agagcacgac 240
agcgatacat ctacctatcc gggttcggtac ggcaaaatct ccgactcaat ccgtgcactc 300
gctctactac cacttcacgg tgggcagtta ctttcgtcgg catcggtaca cctcgacgaa 360
cagcgctatc tcaaagctga caatgctttg ttcaaatagg aggcacgctc cagcacagtt 420
tccaaaccct ccttccttat ttatatacga tcagaacttt ctcatccttc agactcgctg 480
gtctttcccc cattgatcac taatnccgnt ggggcatect attcgcttcg ttccagtcca 540
ccttcactcg aatacgtatt ggggatgcca caaagaccgg atgccttttt cgaaataggg 600
tattctcgtg gtacgatcgc acaaatcggc atcttcttgg cgcatacaat ttccataaag 660
attacggcct g

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(2) INFORMATION FOR SEQ ID NO:874

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3295 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3295

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:874

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(2) INFORMATION FOR SEQ ID NO:875

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2828 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2828

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:875

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ccaagcgcaa	ggaggcgtga	gccgcattcg	agccgaatac	cctgcatact	ttatgagcaa	240
gcagcagtg	acacccctgc	aggtaccgat	acgcagcgtc	tgcttcagac	catgtcgaaa	300
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(2) INFORMATION FOR SEQ ID NO:876

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 884 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...884

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:876

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(2) INFORMATION FOR SEQ ID NO:877

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 5574 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...5574

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:877

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ccataagtcc	caaaccaccg	cagttgctca	cagcagaagc	cagtttccaa	ccctgcacca	4320
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ttcttattct	tcttattttg	tattgtatct	ttattcattt	ctcatttggg	cgtctgatcc	4440
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ttttacggac	acacaacata	gtcacaaaaa	taggaacaaa	agccgacttc	tacaccgct	4560
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cagaggcttc	gacaaattcc	aaacagcttc	gacaaaagtg	agaggaaatc	gaaaaataat	4680
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agtcagaagt	ttacacgaat	accggtagac	caagtgcggc	cgaaccgta	catcacgagag	4860
ccgaagcctc	atcgtgttcc	ttaccgatga	tattgtcgtc	gcacgcgtca	catatcgctt	4920
gtcggctacg	ttgtccatgt	tgaaatagat	gtgggtgctg	gtgaaccaag	cttgaaattg	4980
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tgccatcgct	tcgtactgct	gtgcattacg	cgttgccggg	ttgaatcctg	catagtcttg	5100
ccaaggaagt	tgtacttacc	tatgacatgg	aaaccttga	acagcctatg	tctgcccata	5160
cagcagccgt	catctgtgct	gcactctccg	cgtgagacc	ttgatatagg	ttatatcctg	5220
ccctgtctca	ttgccgctct	cgtgtaagaa	gtgtaactta	cattgttttg	ccaagtccag	5280
tcaccgagag	agacataccg	cgaaggctga	tctgacgaat	aggacgatag	ctgacctcag	5340
ctctacccca	cagtgaacag	catcaacgcc	attgagataa	acatactcgt	tccgattctc	5400
ttcgagggtca	cgcgatccat	ccacttcgta	tagtatccgt	gatattgaac	tcgaagtttt	5460
tgtgattcgt	gaatccatag	ccgacctccc	tgtaagcacc	ttttccatat	tggttttctc	5520
attgggaatg	atagccccgc	agcatagata	ttgccaaaaga	gtggtgcacg	tgtg	5574

(2) INFORMATION FOR SEQ ID NO:878

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 420 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...420

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:878

```

gctacagaca ccgtgtcagc aagctgatgt ttctcggcag cacctgtatt acccgcgaga      60
tgcccgtcag ccgatgcgtg aggaagaatt gctgacagtc cgctggaata taccaacgag      120
ccatacgcca tagccaaaat cgcaggatga agatgtgcga gagcttcaac ctccaatacg      180
gcaccaatta tatagcgtga tgccgaccaa cctgtacggg cccaacgaca atttcgattt      240
ggagcaagcc atgtgcttcc ggccatgatc aggaagattt acttggccga tcgctgcttc      300
gccacgatga ggaaagccgt tccgcacgga tttgtccata cgtctgtcga aagcatcgac      360
ngatcttctt ctttcaatga tattctctca ttctgaagcg gtacngcatc accgcccga
420

```

(2) INFORMATION FOR SEQ ID NO:879

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 850 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...850

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:879

```

tcgatgacga actcgtcgta gacgatatgc cggctgacag tctctccgcg acatggccga      60
atcggacagc tcggccggcg tcttcgcccg tgctgccctc atcatcccgt cctcctccgt      120
gccaaactcg acgagcaggc tgccaccacc gtttgcgagc cgcgcgaggt gcattcctgc      180
cgagtgtgtc ggtatcggag gatggaacac gggattctca cgctttttga atggatcgga      240
ctatagccct tcagcgagca gtttcggaac cgtcgggggg aatacgtcag tctgatctga      300
gtatcccat cttttcgga ttcagccttg tgagccatct gcgcaggcgc gtgccgaacg      360
cagggcggca atcgctccgac ggggcgaagc gggcgcaggc tctacagcga gatcgcccaa      420
gccatggccg accgggatgc cctctggctt cctaccgcca ggcgaaggag cataccgacg      480
ccatgcaaac gcttacgaag ccgtcttgca gcgttatgag gaggggctga atacggccac      540
gacctgacca ctcaggccaa tcggtctctg gatgcccggtg tgcagcgatg agagcggcca      600
tgacctaccg gctcaaatgc aaactcatag cctattaggc tgcctttcgg actaaagctt      660
ttcttttctc ccgttcgtat caaatctacc atcatggata gaaaaataga aaaaaagaag      720
acgctcatcc cccgtaatat tatccctatg caggggggagc aatagtaata ctgccttg      780
cggctgggac gtattcggca atcacagcac caagttcaga gccgaacgcg cttggattca      840
gcattcgaca
850

```

(2) INFORMATION FOR SEQ ID NO:880

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1461 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1461

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:880

tcgacttcga	gctcgggtacc	ctgcaaggag	catttttcgcc	taccatata	gaatgatgtg	60
actcgatgat	ggcattttcta	tgcctttttcc	cttgatagat	cacgcaaaag	cgtagcagaa	120
tcctccagcc	gctttctctc	catcacaact	caggtagccg	acggaatata	agttcagtc	180
atcctatcgt	agcaggggta	aagctgtgga	gaatataagc	gaacgacttc	gattgatcag	240
gtattacgta	cgacattgtc	acagactata	taggcacca	tagaggccaa	tgctttccga	300
atgtgccgac	cagatagtct	attttcccaa	tggtagcagt	ctctccgcca	agcctaaacc	360
ggttttttccc	cttactccta	tggcatgagc	ttgtccacat	atagctcgac	ggtagggtat	420
agctctttga	gatcaaccaa	gatgggagat	cggccacata	gccgtccata	ctatatatac	480
tctctactgc	atgatgatcc	ggctgtatag	atctttatcc	ttgtggagga	tccgctccaa	540
tgctccggat	cattgtgccg	aaatcgctcg	aaaggcggtc	cacagagtgg	atgccatcta	600
tgatgctggc	atgaactaat	ctgtctggca	cgatcaagtc	cgttcatcca	caagagccgg	660
tagaacgcct	gtgttgagt	gtaaccctgt	tgaatatcag	agaagattcg	cgccgaatc	720
gttccgctat	catccctcca	atctgtcata	tgccgtacta	ttgcccgtga	gcagacggga	780
ggaaagctgc	ccggaagtcg	atcctctcca	gagatagagg	tataaaactc	atcatcagat	840
cttcccagagc	agtcagtcgg	agataatcgt	tcgaggagag	gtgagcattc	gtctttcctc	900
ctcgatgatg	tagctgccat	cgtgtatcag	atcctaagct	gcctgagact	cccgttttct	960
tccagctctt	gcagctctgc	ctatatTTTT	cgttcattca	ggttttttga	ttgtctgttc	1020
cgatttttcta	gtattgtatt	cggagcgatt	atgctgtcag	gtgataatga	gatacaaaat	1080
aaacaaacgg	gaaagaccgg	atttatagat	ttaacgtcag	ttcggcgaag	aaaacgccaa	1140
tgtattcggt	ccaagattag	cggttaacgc	actaattttt	ggaagttata	ggttgttctg	1200
ttcaggcaat	tgtatagggg	gcaatctgct	tctgcctgga	tcgaaccaac	attgaaattc	1260
ggattgcttt	tgacgaatgt	tgacgtccgt	atagggagat	gggctatacc	acagggcaga	1320
tgggggtactc	cgtagaggat	gacgagctat	cccgtacggc	tcttcgagct	acctgtagag	1380
ctcggcgagg	tacgccttac	agcgtagcga	gccgagccgt	aagttccgct	ccgtgagccg	1440
tagagggtggc	cgagctgagc	c				1461

(2) INFORMATION FOR SEQ ID NO:881

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 3080 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...3080

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:881

gcaggcggat	tcatacacaga	cctgaagatc	ggctactggc	tcggcaccag	ccgaagagtc	60
aggagaagt	gaagttcctc	ggcgttctgg	tagcttcgtc	accgtagccg	gtgtgatgat	120
gacctgaac	aagacctatg	gctttacggc	gatcaggctc	tggtggctcc	gcaggccaat	180
gcgatggcag	ccgtgacaag	ccgctgatgg	aaggcggtaa	tacgccttgg	attctctatg	240
gcgtagagct	atactggctc	tgatcctgac	gagtataggc	gtgcccgcac	tgcttttgca	300
ctgggtatgt	ttatcccgtt	acaactaaat	acacctctcc	tcacggcgga	ctcgtcagct	360

ggttcgtcag	cacccgctcg	aaggacgctt	cttcaataaa	ttccgcaagg	aacgcggtac	420
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aaatacatgg	gttcgatgct	tttgcccaag	aatggcacgc	catggcaggc	gccgaatggt	540
ggccatcggc	atgtatgcgc	tcatcattct	ctacttcac	gtcgacagat	cagaggcaag	600
aaacatgaag	cataacaacg	aaacaaagaa	tatggaatga	aagagagatt	tctccgatat	660
gtaggcttcg	atacgcaaag	cgacgatcct	ctaccacttt	cccctcgacg	gacaagcaat	720
tggtgctgct	gcgtctttgg	ccaaagagat	gaaggacctc	ggcctgtgcg	aggtcgaaat	780
ggacagcacg	gctatgtcat	gggcagcatc	cctgcctctc	ccggttggtga	gcagcgcccg	840
tgatcggatt	cattgcgcac	gtggatacgg	cccccgacat	gacggcaagg	acgtgaagcc	900
gcaaatcatc	aaaaactata	atggcggcga	tttcgtctga	acgaggaact	gactatgcgt	960
gtagcggatt	tccccgagtt	gcgttcttca	aagggcatac	gctgatcact	acggacggta	1020
ccactctgcc	ggtgccgatg	acaaagccgg	tgtggccgaa	atcatgacgg	ctgccgagat	1080
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aaatcggctc	gggagtggat	cacttcgatg	tccagcgctc	ggtgccaagt	tccgttacac	1200
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tgccgtagac	tacatcaacg	caagtaacgc	tccgacatcg	tgctcgctcg	actcaaagat	1560
cagtattaaa	tatgcgagag	atggtagagc	ctcatcccg	gattatcgaa	aaagccatgc	1620
tgccatgaag	cttgccggca	taacggccaa	gggtgcagcct	attcgccggc	tacggacggg	1680
gccagactct	cttatatggg	actcccgctc	ccgaaatatt	tgccggtggg	atgaacttcc	1740
acggcaagtt	cgaatactgt	tgcgcgactc	catgcggcgg	gctgtggaca	cgatctgcc	1800
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acatcattaa	tagagaatgg	tttggggcct	cggagggaaa	gcctgcacaa	tgggttttcc	1920
ctccggcatt	tcctccatcc	gattcatttg	tatgaaacca	acttttccga	acgttacgct	1980
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cgtggggata	tcagcgttgt	cgatgatgat	cgctcgaca	tcagcaatct	ccaacgcaag	2160
tgctcttttc	cgaagccgat	ttgggacagc	ccaaagccat	tgccgagtag	ctcgttttga	2220
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cctccggcga	agcggtctcc	gaggaagtgc	ccccagccgt	atccggagcct	tgcccgggtgc	2520
cgttggtatcc	tatgatggca	gccgaagcat	caaaatcctc	ttgggaagac	ccgccgaaga	2580
aactctcagt	ggccgtccct	cctcatggat	ctgttgcatg	gcgagtcgcg	cactatccgc	2640
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tgctcttcaa	tctgatcgtc	gatcaaggcc	aattctgcct	gtaagttgct	ttcgtccgaa	2760
ataatagtat	agagagcatt	tcctttctgc	cggaaaagcc	ggacaggcac	tcagccatct	2820
cgctcgctcct	caccgtttcg	acaggctatc	tactcatctg	tggggcttcc	cgacgaagag	2880
gctgaagcta	tgtgagaagt	tgtgcagctg	cttccttgat	gatggggact	gagacccccg	2940
acccttccgc	ctgcaatatg	atcgccgcac	tttgggtgcc	gaccgactgc	tgcggtgggtc	3000
ggagcgcata	gtctctatcc	gaataaccgaa	ttgctggtat	cgacgcgggt	actgccatca	3060
cttatgaacg	agtatccggg					3080

(2) INFORMATION FOR SEQ ID NO:882

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 840 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc feature
 - (B) LOCATION 1...840

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:882

gcacatggta	tcgttgcca	tattgtccag	catgattatg	tctgcaccaa	gcgtactgct	60
tcttcgacct	cagccaaatt	agacgtttcc	acttccagtt	gatcgagaga	gggagtgtct	120
ttctcgccgc	ttcgtatggct	tggggtaccc	tccggctacc	ttgatgtgat	tgtccttgag	180
cataatcata	tcataggtcc	catgcgatga	ttatgtccac	cgccatggcg	aacggccatc	240
ttgtcgttat	tcgcataccg	ggtgccgtct	tacgggtatc	caaaagcctt	acagcgtacc	300
tttcaaagcc	tcggcatagc	gagcgggtcat	agtggcaata	ccatcattct	ttgcaaaaaa	360
ttaagtgcc	atcgttcggc	ttgcaacaaa	gccggtaact	gccttccaca	cgcaggatta	420
cttgaccgcg	ttttacggag	cgccatccga	tacataggga	gtccaagtca	cggcttcgaa	480
tcgttcgaag	cacggcgagc	tacctccatg	ccggatatga	tgccatcagc	cttcattaca	540
ttgtggctgc	agctccttcc	gattggggga	taatggcatt	ggaagaaagt	ctccatcggc	600
aatgtcctct	gcaattgcc	gatcgatcaa	tttttccaaa	gcatttcttc	atgagtcata	660
acttaaaagt	gatgagggt	ttacggtgtt	tatttggtat	ttcccgctcc	gccggcaagg	720
gtgtaagagg	agtgtgcga	taggcttngc	tcgtatcggg	atagtcttcc	cgatnatgcc	780
ctccctactt	tctcggcgag	ctatcgcccc	ccgaacgatg	agctgaccca	ctgcagcagc	840

(2) INFORMATION FOR SEQ ID NO:883

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2802 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2802

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:883

accctgccta	aatcccggaa	aaacggcgcg	agaatttttt	cgctttggcc	gagaatttttt	60
tgcttcccga	accaaaagca	aaaaaatccc	gcgccacgct	tcaggagcaa	caaagtcaaa	120
aattttggca	cgtaaacagg	cccaacgaga	tgatgcccg	gcttttttaa	tagcagtttg	180
tatagggcat	tgtattgcca	taagcatagc	tcctgagtca	ttcccataaa	gacggggcagt	240
taaaaccgat	cacctcccca	tatccactca	ttatttgtac	gtaaatgtct	ttttcagact	300
ttaaatactt	atattttatcc	cgaaaaatta	cccaagagag	attggtcgat	tgtcgatccg	360
tcttaagtca	tacaatccaa	taatcattat	tgaatgaaaa	aaacaacccat	tatttctttg	420
attgtcttcg	gtgctttctt	tcagccgtgg	gccaaaccaa	ggacaattct	tcttacaac	480
ctttttcgaa	gaagatatgg	ccggaggagt	ttactctctc	ccgactcaaa	atcgtgcgcg	540
aaggacaatg	ccgagtggct	tcttacagcg	accgtctcca	caaaccagct	gcagatactc	600
actttatctt	cgatgagAAC	aaccgctata	tcgctcggac	ataaaagcca	atggggtaag	660
aaaatccacg	gactccattt	actacgtgcc	aacggggcga	tatcgcatgt	ggatctttat	720
atctcgttca	gtggcgagag	cctgcactcg	acacccgatt	caagtacacc	tatgatgacg	780
agggaagatg	accgtgaggg	aagtattcat	gctggtaatg	gatccgaata	cactatctca	840
cgcttggaat	atcattatga	tgcacagggc	agactgaccc	acggatttct	tttgctttcg	900
gggcagaatc	ccaaaagaat	acgtatcact	aaatgaaaaa	ggtctgttgg	tcagcgaagt	960
gctgagcaat	gcaatgggga	aacctattca	gacaccggca	aaacggaata	cagctatgac	1020
gatgcagata	tatggtgaag	gccgagtact	tcgtcgtcca	gcaaggaaag	gcattggcagt	1080
actcaaaaga	gaggaatata	cctatgagga	caatatctgc	atacaatttt	ggctattaac	1140
ggtaccgaca	caaaggtgta	caagcgagac	atcgaggcga	taagtccatc	tccgcaaatg	1200
tcattgacat	tccgtcaatg	ccggacagac	ctggcctaata	atgtacggat	tcaacgcaaa	1260
cgactgaaa	gagattattc	ctcctacgaa	ggagatgtgg	ctactcctat	attcgactat	1320
atcatacgta	caaggctctt	acctcaatgg	caacaccttc	gacagaagct	cagtagcagt	1380
ctatctcaat	ccgtcaacgg	accggttagt	gattctggcc	acggcatcac	acatctgagc	1440
atgtacgact	tgcagggtaa	gcttatccgt	attgtgcctt	gagcggcgat	aaggtggaaa	1500

tggtgtgctcg	atctttgaca	aagggacata	cctgcttaaa	gtgaatacgg	atcagggagc	1560
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tcgtcccccg	gcatggcaag	gagtttttgc	cgatatggga	gggagagcag	ttcatgtagc	1740
gtttgaaggt	gcgagagaag	taagcggatc	cgaaaagcct	gcctcaatgc	taatgtcggg	1800
gatgtttttg	ctccatcggc	aaggagcttg	caggccaatt	ttatcttgat	ctgctgtatg	1860
taccgatggt	ggagcaacct	acgacactcg	tgagctttct	gttgagttgg	gtggactcat	1920
gcacattttt	tcggccaagt	cttgagcggg	aaaatccgga	tttgtttgat	tccaccggac	1980
actgcattct	tgagcagcaag	gagaaactga	tactgctgtc	atctatcggt	tgaggctcct	2040
cctccggctt	ccgatccaca	tgagtttttg	catatagaac	ttcttgagca	actcacggtc	2100
tttcagagct	gctcgatccg	catcaaaagc	tcctccggag	agaatggctt	gcatagtaag	2160
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gacaatggga	atgtgacaga	gcagaggcga	ttgctcatcc	ggattgtcat	ttctatccca	2280
tccattatcg	gcatcataat	atcgtaatga	taatgtcggg	aatatgctcg	gtagcgaggg	2340
ctataccctc	tttccgtttg	cgccggatag	cacattgtag	cgatcgcaaa	ggagtagttt	2400
gcgagcaggt	tgatattcct	attgtcctcg	acgagcagta	tggtcggacg	tcgtcctcga	2460
agcgatgatt	cagagctgct	accatcggag	atgtcgggtg	tcatcgggcg	cgatgtggac	2520
aggcatgaca	atgtcatcgg	aggaggggtc	caaggaagaa	tctctgccga	agaggactgg	2580
ttttgtgtag	gaatactatg	gtgaaggcac	ttcctttccc	cggctggctt	tccactttga	2640
tcgtactcga	aggtttttcga	ccagtatat	ggtaaacgag	agtccgacgc	ctgatcatgc	2700
ttttcggtag	cggactgtcc	tcgatagaag	atgtcgaaga	tatggcctga	tcagttttat	2760
ctattcctat	gccattgtct	gcaacgcgta	tgacagattt	tt		2802

(2) INFORMATION FOR SEQ ID NO:884

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 436 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...436

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:884

aacaactaat	gtctcacaaa	ttaatttaag	aacagagatg	aaaaaactgt	tttagcgact	60
ttgggactta	tgccatttgc	catgctctca	tgttcaagaa	caacaaggat	ttggagaaca	120
aaggggaggg	tactcttttg	gtaacgttgg	tagctcctat	aaagctccac	gcgaaacctc	180
tgccaagatt	gagaagcttt	tgccgcagct	tatcccgatc	aaaggataag	ctggacatac	240
acgtctctat	tatccgaaag	aaactggctc	agcagggtat	ttatatcgat	gctcggatga	300
ggctttggag	aaattggctc	gtctgggtta	taagaagatc	aatttacaga	gtcttcatgt	360
gattccccgg	cgagaatatg	atgagatgat	cgctttgttc	aataatttta	aggcagcaca	420
tagtgatatt	actgtg					436

(2) INFORMATION FOR SEQ ID NO:885

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 342 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...342

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:885

ancctctctt atattcactt ggcccaactta gtcctgagat aatattaact cagttcggcg	60
taagaaaacg ccaatgtatt cgttccctga ttagcgggta cacactaaga tcttgggagt	120
tataggttgt tccgttcagg caattgttag ggggcaatcc tgcttttgct tggatcgaac	180
caacattgaa attcggttgc ttttgaccga atgttgcagt ccgtacaggg agatgggcta	240
taccaagggc aagatggcgg tactccatag aggataacgg gctatcccgt acagtcttcg	300
agctacgctg tagagcccgg cgcggtgagc cctacagcgt ag	342

(2) INFORMATION FOR SEQ ID NO:886

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 460 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...460

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:886

ggtacccgcg aacggtagcc gtgtacacct gatccattac ggctgagaaa cttccagcag	60
gagactgttc ttgagcgtat attccacatt tccggacaga catcgaatat agtagtcgaa	120
ggagtatcca ttctcttctc gaacttgaat cgatctttcc cgaacgggca gccggtacct	180
gagccttatt catctttcgc cacgcttgag gttgggcaat gaagcaagat aagtttcgat	240
caatgcttca tcttggcttc atccagatta ccgataaaga agaacataaa gtcgcggcat	300
cagcgaatcg ctcatgttag aaagccatta cctgatcgta attactttct ccacgtcagc	360
agctttcatg gggttcatca tcggattatc gcgtacatgg tatgacggat agagtccata	420
agcgcagcca tcgggttggc tctgtatttt tcaagttatt	460

(2) INFORMATION FOR SEQ ID NO:887

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2504 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...2504

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:887

atgcttcgcc	atcccccttac	gtggaccata	cttgccacct	ttttggctga	ttgtcatatc	60
tcttttataa	gagatacaag	gagaaccaag	ctgcgcgtct	gtggtgacac	ctgaggcccc	120
ggctattccg	gcttatgacc	gagctatgca	gccttggaat	cattacgtgc	aaaaaaactg	180
gtggaagccg	gtttgttaag	gaatacttta	cggaattgac	cgatttgctt	cggagctata	240
ttgccaaact	cgcgaaatag	atgccaggga	gatgaccagc	agcgagatat	tacagctctt	300
cagcggatcg	aacttcctga	aaaaggaagt	cgcctgctgc	atgaatattg	caaacggccg	360
acctggccaa	gtttgccaag	tataaaccga	taatggagag	gatgtggaag	ctattcgaga	420
tgctcgcgcc	tttctcgatg	agtgcataat	atccgggagt	catgacattt	gcatatcctg	480
aattgctttg	ctgctgatcc	tgctgccttt	gatagcgact	tggtatatcc	tgcaagcact	540
aagacttcgg	caacgatgac	catatcttca	ttgaagccct	ttgaaggagt	cgccgagggt	600
tgagggtcta	tctgcgccat	tcgttgccga	tattgaggct	ctttcggtcg	gttttctcat	660
tattgctttg	gctcgtccgc	agaatacaat	agctggcaga	aagattcgat	cgagggcata	720
gatattatgt	tggcctggat	gtgtcaggca	gtatgcaggc	catggacttc	aagccgaatc	780
gcttgaggca	gccaaagatg	tagcgatttc	ctttatcaac	aatcgctccg	acgcaaatc	840
gggatgggta	cattcgcccg	agagagcttt	actcaatgtc	catgactacc	gaccataccg	900
tattgcttaa	tatggtacag	gacttgcaga	tggtgttctg	gatgatggta	cagctatcgg	960
aatgggattg	gctacggccg	caatcgactg	aaggacagca	aagccaagag	ccgcgtgggt	1020
attctgctgc	ggacggatca	aacaacatgg	gcgacatcac	accccgaaatg	gcagccgaat	1080
tgccagaacg	ttcgggtattc	gtgtgtacac	agtcgggtga	ggcacacagg	agaagctcct	1140
ttccccattc	agacggaatt	cggagttcgg	attcagatgt	gcctgtcgat	atagacgaac	1200
ccacattgga	cgggaattgcc	gaggttcggg	tggaaaatac	ttcagggctg	tcgataatga	1260
aacgctgaat	gaaactacaa	ggaaatcgac	aaattggaga	agacgagact	tatgaccaag	1320
agctcaaggc	ttatgaggaa	aaatactttg	tctatgccct	tattgctttt	ctttgttgct	1380
gacagagttt	ttgcttcgca	atacacttct	tcgttccaac	cgtaaaaaga	ttcccatggt	1440
cagattttat	tcacccgaat	acttatactt	ctgctgctgc	tcccattgct	tgtgggggta	1500
ggcgtctatg	cttatcgcaa	agacggggcg	aagaaagacc	ggtttgcccg	aacttccgct	1560
gctaaggcct	caaaccggaa	gcaagtacca	aacgtcggat	ctggcgcaac	ggatttctct	1620
tcttgccatc	gttttcttga	tcgggatgct	tgcccgctcg	caaatagtat	tcgtgtggat	1680
gtgcctaaag	aggagaaagg	tatcgaggct	atgattgttt	ggatatttcc	aactccatgc	1740
tctgtgaaga	tgtcaagccc	aatcctttgag	ttttgccaaag	caagtgttgg	gaaagctctt	1800
tgacggcttg	cagacgacaa	ggttggtattg	gttgatttcg	caggtaatgc	ttatacgcaa	1860
atccgattac	tacggatttg	tctgcagcca	aacagtttct	tgcagatata	atcccaatat	1920
ggttacagcc	caaggaaacgg	ctatcgagac	ggctatcgaa	ttgcctccaa	atctttttcc	1980
gataataagg	aaatcggtaa	gactatcatg	tcctgacgga	tggagaaaat	catgaaggaa	2040
atgccatcga	agcggcacgc	aagcccatag	agcaggcata	cgggtcaatg	ttattgggtct	2100
cggaaacacct	tggggggcacc	tatacctatt	gaagaaggat	acctcaaaga	tgaaacggca	2160
atcctgtcgt	taccaaattc	gacgaaaaga	tgtgccgtga	cattgttcag	caggagaggg	2220
tactttcttt	tccggacaga	gtgcttctgc	gctgttcggg	ctatagagag	ccagctggac	2280
aaactcccca	aagccgtact	ttctcttcgt	cttcttccgg	ctatcgcgaa	gtgtacggat	2340
ggttcggact	tgggctttga	tatgtttatt	gttggaattc	ctgattcagg	agcggaaagag	2400
tggttcttca	gtaggatcaa	attgtttgac	agatgagaaa	ttcatggcga	atgccacctt	2460
cataaccttc	ttcatgcttc	ttgcttcaac	gagccgggtc	cgag		2504

(2) INFORMATION FOR SEQ ID NO:888

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4334 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...4334

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:888

cccggaaaaa	aatgtcattg	gaggagattg	cccgcagtat	cgaacattac	ccacacgctt	60
tctcatttgg	acaggtggag	aaccgactct	gcaacttaag	aagaagctac	ggcttatttt	120
cacaggcttg	gttactttca	agctataaga	ccaacggaac	tcgccccgta	cccaaaggta	180
tagactatat	ttcctgagtc	ccaagaccgg	agccatagga	aaactgaaag	aaaacttccc	240
tgatgagtgg	gggagtttcg	cttcccgtta	ggatccgata	ctcctctacc	tccacgatcg	300
atgaattgcc	cactgctcag	cattatcttg	tcagccccat	cttgcgggag	acgatgccat	360
ggagccccgat	ccttctgcc	tactcgcgtg	cgcgagttcg	tcaaggcttt	tctgcttgg	420
cgtctgagca	tacagatgca	caactgattc	atatcccata	gcctatccct	tttcttctta	480
atatgtacag	ggacatcata	aaatccatta	tccttttctt	atcctgttgg	tatgccttgt	540
tttgcctgct	gcaagagcgt	gaagttgaaa	gatgcggaga	aggcacatat	cgccaagagt	600
ataccaaggc	tgccgatatg	tacaatacat	tatacagcgt	acccgacgaa	agcaggtgga	660
gatgaaagct	tatacggctt	tccgatcggg	gaaaactatc	gtgccgccgg	cagacaagcc	720
aaagctttgc	gtggcatctg	aatgccagac	gctacgggta	tccggattct	gtggtactgc	780
tccgttggca	cagacttatc	agcaaggagg	taactataag	gaagccgagg	taccttccgt	840
ggatatctgg	aagcttatcc	gaaaagttat	tttgacgcta	tcgtttggag	gggtgtctct	900
ttgcccgcga	gcaaaaggaa	tatcctacac	gtaccggata	cgccgagctg	ccgagtggaa	960
ttcggcacgg	ggcgacttcg	cccggcctat	gcacccgatg	cttcggctct	ctatttcaca	1020
tcgagcagag	caaagacgac	ggtttggata	atagcagcat	aacgggactg	aaaccaaga	1080
catttatatc	atcaaacgag	atgcacaagg	acgatgggga	cgtcccgtag	cgtgtccgga	1140
ggaatcaaca	ctccatggga	tgaaggcgtg	ccaacgtcac	gcccgatggg	agtaccatat	1200
attatacgtt	ggcgacgcaa	ggagcgatta	cgaccgtacg	gtacagatct	attccgccgc	1260
tcggagcgga	gaagcggttg	gagcaacggt	tcgctcgtgg	acattatgcg	cgattcgcct	1320
cgttggtctg	tcacccctct	atgtcggcat	ccggcgatta	cctgtatttc	gtagcaatat	1380
aggcggtagc	tatggcggca	aggatattta	tcgtgtcaag	ggtcggatcg	ttcttatggt	1440
tcaccggaga	atttggggcc	tgatatcaat	cgccggggga	cgaaatgttt	cccttcatag	1500
atggggatag	tacccttttt	tcgcttcgga	cggacacgcc	ggtctgggag	gactggatat	1560
tttcaaagca	cgttggaactc	taccggccaa	tggcatgtag	tcaatatggg	acaaccgtca	1620
attcctctgc	cgatgatttc	ggcttggctg	tggagcctaa	aggcaaaaca	aagaagaagc	1680
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ccgcacctct	tccatttctga	actgcggcta	tctacaccga	gattcaaggt	tatgtgatgg	1800
acagagaaga	aaaccatag	ccggagccac	tgtcaggatc	gtaggcgaa	gcggccccgt	1860
agacagggat	tcgtgactac	tcgtgacgat	ggctcctata	agatgagcgt	gagggcgata	1920
ctcgctatgt	aatgcttgcc	ggagcatcgg	gttatttgaa	cagtacgtag	aactcaagac	1980
cgataccgcc	aagcagagtg	agacctactt	gtggactttt	tccttgcatc	gcgtgagaaa	2040
gccgagggct	tgcaaaattt	ttctatgatt	tcgataaaagc	tactcttcgc	cccgaagca	2100
tgaagagttg	gacgaactga	ttcgtatcct	cacggacaat	ccggatatte	ggatcgattg	2160
ggttcgcatg	ccgacaggaa	aggccccgat	gcttacaacc	tcggatatct	gaccgcagag	2220
ccaaatccgt	ggtggattac	ctcacgagtc	gtggatagcg	gccgacaggc	ttacgtggaa	2280
aggctacggg	aagtctgtcc	ccagacgggtg	acagccaaaa	ttgccgaacg	gcacgatttc	2340
ctgaaggaag	gcatgtgctc	accgaggaat	tcgtagcacc	tttgaccgag	gagcagcagt	2400
cgtctgcgac	caactgaacc	gtcgtaccga	gttccgtgtg	atcgaagaag	gttgcgttaa	2460
tcgctcgtgg	aatgaaaagt	agagcgggtca	aagccgtaca	agtgtgcttt	gataagactt	2520
aatttttccag	tacgtcgaat	ctgatattgt	ttcagaaaaa	tctactagtg	gtttcagaaa	2580
aatctacttg	tggaatattac	gtctctttta	tgagtgcctc	tttgagacac	caaacgacat	2640
gaccggaaca	gcacttgtgc	ttctccaacc	atcgcccttg	tccccgtgta	tgcacttgtg	2700
cgccacgctg	taccgtctga	ttcacattgc	gtccatacga	gccgtaccac	ctccggctcc	2760
aataatccat	ccggctacct	tcggcacaca	gtatagccag	caataccgat	taggagaaac	2820
tcgctcgaat	gaaacccgca	aacaatttaa	tcgctcgccc	ccgggggcaa	cctgtcaggg	2880
cgatcgcgtt	taaaattttt	agtctctttc	ctctatgatt	tgaatctctg	acatatgaat	2940
cgacttgtt	tgataatcgg	gtgtagcaat	catgagcttt	agatgcacgt	agtggctgaa	3000
atgcgattgc	cctgatcaaa	aatagtacta	cgaaagtttg	taccttagcg	cgcatgaaaa	3060
agaccaatct	gtttttatct	ctgctgggat	ctttatcacc	ggtagtttta	tgactgcctg	3120
tgacagaaag	tccaagcgaa	caaactcacc	gaagaagatc	ggagccgcaa	tgagtatgta	3180
cagtcatgga	tgtgcttagc	aatattatcg	gtaacgtcag	gctgtatttc	gtcgtaccat	3240
aagtatcaaa	catatgactc	ggcgtggtat	agatgcgatg	ttggcgggct	tgacccttat	3300
accgaataca	ttccttacga	ggaaatggat	gactgaat	gatgactacg	ggagagtatg	3360
ccggagtcgg	agctatcata	tgacgcgccc	ggatagtgct	gtgattatcc	agagacctat	3420
ggaaggatatg	ccgcagacga	agcaggattg	atagcaggcg	accgcaccc	gactatcgag	3480
ggaaagactt	ccgcaaatcc	accacaccga	aagtaagcca	agcactgaag	ggatagccgg	3540
tactgttgca	aaggtgacag	taatgcgcta	tggcgaacca	aacctcgtac	tttttccgtg	3600
aaacgtcaaa	aagtgattat	gaattcgtca	cttacagcgg	aatgctcgat	ggctcgatag	3660

gatatatccg	cttgacaact	ttacggacaa	aagtgcagaa	gaggtgcgca	cggccttggt	3720
ggatttcgtg	acaaacaagg	agcgaaaggt	ctcatttttg	atttaagagg	caaggtggcg	3780
gactgatgca	ggctgctatc	gagatagtca	atctgttcgt	cctaagggca	aagaggtggt	3840
aacgacaaa	ggtcgcattg	cagagtcggc	gccgtatttc	gcacattgac	tgaaccgatc	3900
gacacgaaac	tcccgatagt	gtcctgatcg	atggacaatc	ggcatcttcc	tccgagattg	3960
tagccggaga	ctgcaggata	tggacagggc	tgtactgatg	ggacaaaaga	gctatggcaa	4020
gggcttgtag	aaacgactcg	tcagctacca	tacaacggcg	tgatcaattg	actacggcca	4080
agtactacat	cccaagcgga	cgttgatttc	agcgttggac	tacagccgca	ccaatcgga	4140
aggtatggca	acggccattc	ctgacgtctg	cacaaaatct	tttactactg	tgccggaaga	4200
cgtgtagaag	atgcggagga	atcctgcctg	acatcgaggt	caaacaagat	acagctgcga	4260
catactttat	tatatggcca	tcaataatga	cgttttcgat	ttcgtcacag	gtatgtgctc	4320
aagcataaaa	cgat					4334

(2) INFORMATION FOR SEQ ID NO:889

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2426 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2426

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:889

cgcgaggccg	agatattggc	tatcaccaaa	aaagcatgcg	aataacgatg	cacgtacctc	60
ttttcaagtt	ggttccgaac	cgctctctct	ggatctgctc	gcgaatatct	ggatagtcgc	120
ttcaagctgg	aactctcagc	ccgatgcgta	agacgtatcg	agcactgccg	ccactatctg	180
gacgagaaag	tgaagcgctg	gacaaaacca	tatacggcgt	gaccaccggc	ttcggctctc	240
tctgcacagg	acaattacac	cggatcagct	taccgnctta	caggagaacc	tcgtaagagt	300
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ggcgacctcg	ccctctggcc	aatctcttcc	tgcgcgttat	aggtgaggga	gaagtcata	540
caagggagag	aagcgcaatg	cctgcgatgt	gatgcaggag	ttcggctgaa	gaagatcatc	600
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gctcgaagct	ttcgaggctt	ggatgcccc	tttaccgaca	acctccacat	catacgtcct	780
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tgaccgacaa	tcccacggtc	tccccgatga	agatcttgct	gtatcgggtg	gtaacttcca	1020
cggccaaccc	ttgccatcgt	atatgatttt	ctggctatag	ccttggctga	actgggcata	1080
tcagcgaacg	tgcacggct	cagctcatac	tccgtctgcg	caatctgctg	agttcctcgt	1140
agccaatccc	ggctcgaaca	gcggattcat	gatacccagt	atgcagccgc	agctatggtg	1200
agcaagaaca	agatgtactg	tttctcgcag	ccagcgatag	tatcgtcagc	agcaacgggc	1260
aggaagacca	cgttctatgg	gagctaacgc	agcaacgaag	ctgcttccga	tcatagaaaa	1320
cctgagatga	tcttcgccat	cgaactcctc	gatgcggccc	aagccttcga	atccgcctgc	1380
cgaccaagac	gtctccgttc	ttggagaaga	tgctcggcga	gtgcgcaagg	tagctcccaa	1440
ggtggaggac	gatgtagtca	tgtacaaaca	atacaggcag	ccacggagtt	cgttcgcgaa	1500
tatgctttct	aacgaacccg	cttctccgcg	tgattcctta	cgctgaggag	agggagatac	1560
aggctttcga	atgcaagaaa	gagagagtgt	gccacgaagt	atcttcgttt	ggcacacctc	1620
ttctcgtata	ggctctctcc	gacgcaataa	gggtaatgcc	catgccgttt	acaagacatg	1680
agatcagact	aaacaatcga	aaacaaacaa	tgacaaagaa	acatacccca	aagctactgt	1740
cctcgacata	tcggcatcag	tagatatctc	gacggcgga	tcatcagcaa	acaagtactt	1800
aagaacgaag	tagcaacatt	actctcttct	ccttcgacca	agggcaggga	ttgagcgaac	1860

accagcacct	ttcgatgcct	tcgtacagat	attggaaggg	gaagcggaaa	tagaatcgga	1920
ggccaacctc	ttctcctcaa	agccggccgg	tccgtcatca	gccggccaac	gtcagccatg	1980
cactccatgc	tacgaaacgc	ttcaagatgt	cctcaccatg	atccgcggct	gaaaacgggc	2040
agacatatac	tgcgccatct	gtggacgtaa	agcctccaac	aaataaaaca	aggagaggag	2100
atctgtaatg	ccgacagtct	cctctccttt	ctttttcttc	ctaacctctt	gtctacttgc	2160
gactgcctgc	ctcttgcgca	tcatgagttt	gtccacgata	agcgaatagc	accgtcgcct	2220
gtgacattac	aagccgtacc	gaagttgtcc	atggtatata	caatgctatc	atgagtgcct	2280
gtaaggactc	atcgaaaccg	agctactctg	caaaacacct	aaagccgcca	tgatggctcc	2340
acccggcact	ccggagntgc	caccatcgta	ataccgagca	taaagataaa	tccggtaaa	2400
aacctgcata	ataaggcata	cctctgc				2426

(2) INFORMATION FOR SEQ ID NO:890

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3538 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...3538

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:890

tacccccctga	ttgatcagct	ccgttatatc	gcgagatatt	ttctccacag	ttcgatgtcc	60
tgtgagggtca	ccgtaactgt	ctggctgagc	agatacccg	aaagggtcctg	acgtttttgtt	120
cctgccgagg	atcgtaatat	tagttgtttc	tttagagatg	gctacgcttg	agaagatata	180
agacgaatcg	ggcagcgctt	gtttttcaaa	tagtctgcta	ccaatatctg	tttttccttc	240
aaagcttgta	ggccgattcg	agatccatca	tctggagctg	gtacgaagca	gtccaacgat	300
cagatcggat	ttgaaattac	gctcggccat	accggtcaca	gtcccgaagg	ctgagagcgg	360
cgtagctgag	cgacactgcg	gccaaagagca	taaggcccaa	tacgaaagcc	aaaccggcga	420
cgatcgcaat	ccaaagtttt	tttttttcat	cacaaagcac	tgtattgatt	ctatattact	480
acttcttata	ccatagaata	caggataagc	aaagtaatgc	gtttcccacc	gacgagtccg	540
atattgtatt	cgcgtccat	accgacggca	aagccgaatc	gctcggagct	ttcagctcaa	600
gcgatccacc	gtactgaggg	ccgaatccat	gcatacgaca	gccatattga	gtcctgagcg	660
cgtactgctg	tagagaggat	agctgcaaat	ccattgacaa	agacattgtc	catcacttcg	720
tatcgagcac	ttccttaagc	gagaacgttc	tattatcgaa	agcattccac	tgtacctgtc	780
gatatcgata	ccggtggtaa	aactcaatct	ctcgggtggc	tgccaacgca	gttgccattg	840
acagccgtca	taggtataaa	gccgaaattc	tgctgccaac	cgcttggaca	tgtgccgtaa	900
gattttgact	cagcaagaag	tcggcaccag	cttccatccg	aagtccttgc	gcacaccggt	960
caataaatca	tggccaagac	gatattgccc	gatgtataaa	aatgcatact	atcgggtcgg	1020
cgccatgaag	gacaccggca	gcgtggcgag	tttgcaagag	gggagaaaacg	aaatcccgcg	1080
ctctgccgcg	aagttgagtt	cctcattcaa	ttgcaaagat	gagcgatagg	cttcaatcca	1140
ttgagcaaa	catcggaag	atgtttgtct	ctaaactttt	cagtgtacgg	gtattctgaa	1200
aagaagcggg	caggacgggg	tgatcatgga	gagaagaggg	gtctgtctca	ccatgctgct	1260
attcggcact	ggctaaccgt	agagagacta	tcctttttct	cttgcgccat	cgcagagaaa	1320
agactaccac	gaatatcaac	ccgaacagga	cggttctcgg	acgacggata	agcaccggat	1380
tatcatgagt	cttgcataat	ttgatatacc	gcaaagataa	atattatagg	tacaacagac	1440
ataccgtaca	ggccctaaag	gttatcccca	tctacaagac	gaagcagaca	ggaggaggaa	1500
aagaaaggct	aagccgacaa	agagaaggat	acacatccta	tactcagttg	attttcacac	1560
cgaaatttgc	atttacagcc	caaaaattct	gtttgattgg	tagccatata	ctggaggttg	1620
acctttttcg	aaggcactta	gaatcagctc	tgtggcaaaa	gagttcatga	aaatcccgt	1680
caacagtttc	tctttgtaac	tctctgtccc	ctctgttcta	ataccggtct	atgtctatat	1740
ttcctgaaat	atccgggcct	gtgatcggtc	ataagagctc	attcagacaa	agcaattcct	1800
tgagtttttc	cttttccttc	gcttcagtct	atgggcaaa	ctacttggtg	gcgaagagtg	1860
atcgccacaa	aaaaccgtat	cagggcaaaa	acagaagcgc	gagctgctga	tccattcgaa	1920
gcttttatca	agccaagccc	ggcgttgccc	ttgctattgg	aaatacgtac	tacgagatga	1980

agcggagacg	atgacaacgg	aaaaatcaac	cgccgaaaaa	gtgtagcagg	catcatctca	2040
cagccgatcg	gtttacgtcc	ggaatttttg	tgtttgcagt	ttggaaaaac	gtgggtgcgta	2100
aacttttctc	tttggcgcga	gaagtaaaaa	aatctcgaac	caaaacgaaa	aaattcggca	2160
ccaccttctt	cagaaaagac	gcgccgcaat	cagaggattt	tcggccgtat	cgggtgggata	2220
gtgggttgatg	gatattgact	cgatagtaga	gctgcctcca	acggcagccc	taagaaaaac	2280
tcgataaaaa	aagcactatt	ctcttgccgg	acatcgaaga	gatcgtcaag	gacgaaccga	2340
atgaaaacca	atagatctca	tcgccctctt	cgacgaaata	accgatcggt	ccatccgcca	2400
gagagtcata	tccgagtagg	cactcgatcc	tgaattgaca	acaacgggag	ggaccagcgg	2460
ccggagacat	gatcgaagag	atagacagct	ccatcgcgag	cccatccggg	ccgagaggca	2520
gggagtgcag	cacttgatcc	cttccgttct	tttcacttga	agcatagctc	cattacagcc	2580
gggggtcatgg	atgccctgaa	ctgcttggtt	ctcttccaag	taaggccatc	gtcggaggag	2640
agagcgagaa	acgctgtcgg	ctctcctgcc	gtccctgatt	gcgtatgctc	atcagaccct	2700
gccatcgggc	atcaatgaaa	gctttgcctc	atcgccacgg	cggttgcaca	gtcggaaaagc	2760
tgccatgtat	cgccctcatc	gtcgctatag	aggcatagtt	gttcaggacg	tactcctgcc	2820
ctgatttcgcg	gatggcagcc	acaacgtgat	acgaccggat	ggcagcacia	gcccttgtcc	2880
cgaagcacia	aggaggccaa	ccagcgactg	cgtcccggat	cggcacaatc	cttgccgaag	2940
tgaaatgggt	tatatcccg	ggaggcgacc	aagtcagtc	ttcgtcccgc	tttccgatat	3000
ataagtgcgc	tgaggacgat	cgggggtaga	ctgccacagc	ctactccacc	gacaaagatc	3060
atcaggagct	ttcctgcttg	ggtttgccca	gggctacatc	gccaaagcca	tgattgcgcc	3120
cctctccctg	tacgatattc	tgggatcgct	ccacgatttc	cctccgtccg	tactgcgccg	3180
catgatatat	ctatatcctc	cggcagatcc	gtctgattat	atcttctgtc	gtcgccatcg	3240
ctatgagtgt	tccattagcc	gttttcaaaa	tggccgggat	acgtagtctc	gcgatccgcc	3300
atcaccgggt	acaaagaggg	cctcataccc	ccatacagac	gacgggaggc	aggcgacagc	3360
tctttcaacg	gcaaagggcg	gcatcgacag	ccacctcttc	cacacgggca	gtcagcgtat	3420
cggatcggga	aaagaagcaa	caggccctat	atccgcagcc	aaataaaaaga	agcggcgctc	3480
gctaccgaat	ccgcagaaa	ggctgtggta	cgatcttctt	ttgagatcgg	aagctatc	3538

(2) INFORMATION FOR SEQ ID NO:891

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 819 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...819

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:891

ggagagcgag	cgaaagaact	ttctttacga	aagagacacg	gcccgttcga	actggcgaaa	60
cttcagggcg	cggtcgagtt	tcatgagaag	aagatcgcg	agccgggaaa	gaccggacgg	120
ttttcgagga	gcgggtaaag	aaaaacgaga	cgggacatac	caaaaccgca	tacggatcga	180
tggagtggaa	gacggcggga	tatcaaaaca	atcgctcgca	ggctgaaaga	gtacgaagag	240
aaagccggac	aggcggagag	cacatgccga	tcggcggaat	atacggcttt	caatatccgt	300
caagagcgaa	gcctccatga	aagagagttt	cgacttcgtg	gataccgggt	ctttgtgaaa	360
ggttgtggca	gcattctatta	tacttacaac	aaggacattt	ggctgaagac	cccaaactgg	420
cctgcatgaa	ctttctgaat	gcttgagaaa	gattcccaga	gtcgtcgaga	gtcatcgga	480
agaactggct	cgacacaagc	caagataccg	acgttcgaaa	cgatggtttc	tgccgtatga	540
agaaagagga	ggaattgcag	gagctgaaga	gacaggccgc	ggagctggtc	gcaagatcgc	600
cctttcgctc	aaaaaagagg	acaacagcga	agtgaacgg	aagaaacgg	cgctcccgat	660
gcgacaatcg	catcgatgcg	cccttagggg	ggagctaaaa	agggaacgg	cttccgagcg	720
gaatcatacc	gattgaaaga	aatacgggag	gatgaaaaaa	tcaaaccctg	cataaagcct	780
ggaagtgggtg	agagatacag	agatatacct	gatactttc			819

(2) INFORMATION FOR SEQ ID NO:892

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 588 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...588
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:892

atgcgattgg	tcttttcgca	tagcttctca	aaaaccttgg	ctgaccgtac	tgcgatccaa	60
tatggaagtg	caatcctctc	cataccagcg	atccggacgt	aaaaggtggg	gcatcagtgc	120
aagtgcattc	tcggggcaaaa	gaccgaattg	ttttctgcc	atcctgtcgt	tatatggctg	180
tgcgatatgc	catcgactca	ggattgagcc	gaagcaatat	cggagcgatg	tcgttcttcg	240
atccgccaat	cgttcgatgt	tcagcaattc	gggcacactc	tctactacga	aagccctatc	300
cgcgccctcta	aagaaagcaa	aatctcttca	tcgcttttgc	ctatccggca	aaaaaaatat	360
cgggaagcggg	aaagcctgcc	tcgatagccg	ctcgatctcc	cctccactca	cacagtccgc	420
cccgaagccg	gcagctgcaa	cgtctgcaaa	atacgaggat	gattgttcgc	cttgagcgca	480
tagtgaatgg	aacatcgtgc	cttcctgcac	tccgggcgag	cgcggaagc	gtcctctcca	540
gagtgtcaga	tcataaaaat	agaaaggtgt	tttcattgaa	aaaataag		588

(2) INFORMATION FOR SEQ ID NO:893

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 731 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...731
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:893

cccgccgtat	ttgcctcgaa	cgggatgagg	agacagcgta	gactactggc	aagaagtatg	60
caaaaaaaga	aaataagagc	agagtatgga	acagaaaaga	ttttcatcac	ctataatcag	120
gcctaccacg	atattatcat	tcgattgtca	gccgatacaa	cctcagagga	tatacctatt	180
gggagactgt	ccgcgggtgc	gtagcgatac	gggtgagcct	cacttgggca	ctcatgcatg	240
gcctagctca	atggcgccct	catggctcgt	tgtccttccg	agaaaaatgaa	aacctaatgg	300
acgctctgcg	tatccttgac	gccgctactc	cggatcaggg	actcgcgcct	ttgtttggaa	360
tatcgagcaa	acaatctgat	cggagactct	cggctccatc	ttcttagtat	atgggggctg	420
catccaataa	gttttgggtg	cgtccttttt	tattgtctcg	ccgtgtcccc	ccctcatctc	480
gcattcggct	atttacgctc	tgggaattttc	tcgtttactg	tcccacaaaa	cgtgggtgtgg	540
aacttttctc	ttttgggtctg	ggaagcaaaa	aattctcgcg	ccacaacgaa	aagttctcgc	600
gccacttttt	tcagagatat	tgctgtccgg	taaaattctt	cagctactca	ccattcgtaa	660

gcatttgcaa gccattacc gaccgaggcg ttggctgtga agaaagtctg gcgtatggct
gatatagcgca c

720
731

(2) INFORMATION FOR SEQ ID NO:894

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2353 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2353

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:894

gagcccaatc	aattcacctc	ggtacccggc	gagactattc	gcgatttggg	ctggaaggac	60
aactcagcaa	aaaaggaacg	cccacgatgg	gaggtctgtc	attatcatct	ccattctgat	120
ccccactcta	ttgttggccc	gtcttgaaat	gtatatatcc	tgctcatgat	cgccaccact	180
gtcttgctcg	gctcataggg	tttttggtatg	actacatcaa	ggttttccgt	aagaagaaa	240
agggtgcac	ggacgttaca	aaataatcgg	acaggttggg	cttggttcca	tcatggtata	300
gtactgtata	tgaatcctgc	ggtcgtgatc	aaagaaaata	gcgagtgcct	cgggatggac	360
aggtcgaacg	tgtacacttc	aacaaacagg	agtaaaatcg	actaagacaa	cgatcccctt	420
tgtcaagaac	aataatttcg	atacgccgat	atacttcgcg	tcgaaggcaa	aacaaaagtg	480
ctattcggct	gattctcttc	gtctgcgtag	ctgtagtggg	agtcaccttt	atatccaacg	540
tgccaatctg	actgatgggt	tggatggttt	agcgacgggg	tcttctgcat	tatcggagtt	600
gtactggcta	tttttgcccta	tgtctcctcc	catatcggat	ggcctcatat	ctgaatatca	660
tgtttattcc	cggagcagag	gagctgccat	ttttgctttt	gctttcgttg	gtgccacgat	720
cggttttctg	tggtaaatgc	ttatccggca	caggtcttta	tgggagatac	aggaagtctc	780
acttggggagg	aatcatcgct	gttttcgctc	tgatcattcg	caaagaaatg	ctatgcccat	840
cctctgcttc	gtatttatca	tagagggtct	ttccgtgatg	atcaggctct	ctatttcaag	900
ctgacgaagc	ggaggacagg	tgaaggctcg	ccattttcaa	aatgactccc	ctccaccacc	960
atttccaaaa	gcccggtaat	cgggcataga	tgcattggcta	cagaagccta	tgcaggctat	1020
tcccgaatca	aaatcactgt	tcgcttttgg	ctcgtaggga	ttatcatggc	tgaattaaa	1080
tagcaacact	caagatgcga	taacgaataa	ataacgatct	gggaagagga	cggattgaaa	1140
tatgatatag	ttgttctcgg	agcaggagaa	agcggatagg	agcagctctt	ttggctcaag	1200
ccaaaggtct	gcatgtattt	gtatcgacta	cggaaagata	gccccgaaat	acaaggaaga	1260
acttaaccga	tatgcatacc	gtacgaagaa	ggtaggcaca	cagaggcgat	aatcctcgaa	1320
gcaaagaaat	tatcaaaaagc	ccgggtattc	ccgacactgc	tcctattatt	cgcaggctgt	1380
tgccaaagag	ataggtatcg	tttcggaaat	agagttcgcc	gacgttacac	cgatgcattt	1440
atggtgtgca	tcacgggtag	taatggcaag	caacaacaac	catgtggttg	tatcacacgc	1500
tctgtaaggc	cggtttggag	taggtttggc	aggcaatgtc	ggtttttagtc	tggccagaca	1560
ggctcgcttcg	atcctcatcc	ttattatgta	atagagttga	gcagttttca	actggacaca	1620
tgtacgactt	cagggctaata	gtggccattc	tgctcaatat	tacaccgatc	atttagatcg	1680
atacgatcac	cgattcggagc	tttatgcaga	agcgaaatga	gaatcactcg	gaatcagcaa	1740
cccaggagatt	gcttcatcta	ctggaggatg	atccttttat	cagccgatgg	gtagccgaac	1800
atcctcctgt	agccgtcttc	taccgttcgc	aatggaagct	cgaacggata	atacaactgc	1860
ttgatcaatg	aaaagaacga	attggttgtc	atgaatctta	attcaccttt	tttatggatg	1920
aggaaactttt	agctctgtcc	ggcatgcaca	acaggcaca	gctatggcaa	ctgccattgc	1980
tgccaaagct	atggatatta	agaatgaggt	attcgagaag	ccttgcagga	tttcaagaat	2040
gtaccgcatac	gactggaaag	attgctcgcg	taaaggggtg	cgattatata	aatgactcca	2100
aagctacaac	gtaaatctta	cctgggtatgc	tctagagagc	atgaaaacta	gagtaaactc	2160
attctcgggg	ggacagacaa	aggcaatgac	tatacagata	tagagatctg	gtattgtcta	2220
aagtcgatgg	actgatcttt	ttgggcatag	ataagagaaa	ctccacaaat	tcttcgatgg	2280
caagatctcg	cggattgcag	atgatgctcg	atgcatgaag	ctgtttcttt	agcatacaag	2340
atggcatcca	ggg					2353

(2) INFORMATION FOR SEQ ID NO:895

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3457 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3457

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:895

gttcttgccg	aacgtttgaa	tataacagtt	gcctacctga	atgaagcgaa	aatgctgttt	60
ggggaacgag	tgtaagtcgg	aatattcagg	atgaaatctc	ttgcaagcta	agcgacaatt	120
agtctataca	acaacctctg	taaaagaata	gcacaagggt	tgggatttga	cgattactcc	180
tacttcacac	gactattacc	aagggtgcag	gagtttctcc	aacgcttttc	agaaagaatt	240
accacaatag	tgctattatc	accgttgttt	gtctattgtg	acgacctgta	tcccctgtac	300
ctttgcagca	gaattttatt	acttaagaag	atacagatta	taagatgaac	aacgctgtga	360
atattttgca	agaaggaagt	atgatgaaat	cctgacaaag	ttggggatac	ctattgtcat	420
cgcaatgctg	attatggcaa	ttacaatgtg	gtagatactt	tctgggttgc	acgtttggga	480
actcttctcg	cgctgccgta	tcagttgttt	tccctttatc	gttggtgttt	cttgggtag	540
gctgatgttt	ggtgttgggg	gcgagtgta	tatatctcgc	ttattggggc	gaagcaaatt	600
gtcaaggctg	gtcaggtagc	ttccgtctca	gtgatcactc	tgtgatttta	gctgctctca	660
ttgcccttgt	atgcaatgcg	tttctacaga	aattctgctt	ttcatggggg	caaacgagga	720
gatgatgagc	ttagcgaagc	atatggcaga	ctgttcatcg	ttagttgtgt	cataggaacg	780
ttgatgtgtc	gatgtccaat	attatagttt	ctcagggggc	ttcaaaacgt	ctgatcgcca	840
atgataatag	gttctgttat	aaatgtcgca	ttggatcctc	tattatctat	gctttcggct	900
ggggtgtgaa	aggtgctgcg	tgggcaacca	tctttcaaga	atcattacaa	caatcattta	960
cacctgcttc	tttatgaaag	agaggtgaaa	gtttcgtttg	ccttggttcgt	cccaacgata	1020
agaatgtact	ggacatcata	aagataggta	tttcaatgct	ctgtttgcaa	ctcctccaac	1080
actttcgatt	agtttattgc	agagagctgc	cgtaaaatat	ggggcagggc	tgtagcagca	1140
gtaggcatcg	ttctgaaaat	tgtaacattg	ggaacgcagc	ggttttcgga	tttgtaacgg	1200
gactccaacc	gatggctggc	tataatacgg	ggcagaaaat	ttccaaagg	taaaagaggc	1260
agtacgttgt	tcctgatact	gacaacctca	ttttgtgtac	tttgagcac	tttcatactc	1320
gttttgcttc	tcctgttatc	agttgtttcg	gcaaagacga	aacaatgcaa	gaattgcacg	1380
aattgccctt	agagccaata	cgctaattgt	tttcactttc	gcttccagtt	tgtgtattcc	1440
acactatata	tggcaatcgg	aagagcaaga	agagcctttt	gctcaatatt	ggacgacagg	1500
gactcttctt	tattcctgta	tattgctgct	cccatctat	tggggattga	acggagtgtc	1560
ttatgcacac	cggtagccga	cgtctttgca	actttgatga	cactgttctt	tgccattaaa	1620
ttcataggga	aattcgtcac	aaatcacatc	tcacaacaga	gaatctcaat	gttgaacata	1680
aaagatatga	ttatgctaag	acttactcaa	actgagactt	taagacaata	atctctttat	1740
gctctacaaa	aggacagata	caaaagcgtc	agacaacttt	attctgaaga	ttattgccct	1800
atgtgatgca	gaagagattt	agtctcattg	tttcggaccc	tccgttatac	acgcttttgc	1860
ctcaaccttt	gcaaagggga	gattcaatgg	acggagaggg	gaaaaaatgt	acagaactgc	1920
tctttgtcat	tgacacggag	cttgaattac	tgaaaatgcg	atgcagggac	ttcttctg	1980
attgccagtc	agacctgcta	agaaactctt	tggacaggca	aagcaacaga	ttagttgaac	2040
tcctttatgc	tctcgacatt	gcaacagtat	caacaacgga	gaaatagggt	tagaggaact	2100
ggcagacctc	tctcgagat	cttcggagtg	gcgataaaga	acagctacaa	cgtctaattga	2160
acatgaaacg	tcgcaaagat	gatatccgca	cctattttct	tgatgactcc	gtgagaaact	2220
taataagcgt	atggtggaaa	gcgatctgaa	aggcgcaagt	tcaaaaagcg	ataatcgcat	2280
tggttaatca	ggcttctctc	aataaaggga	agtctgattt	ttacatccat	gcaaggagca	2340
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tcgatttccc	ctccaataat	agccaattcg	agtgtcagtt	tctccaactt	gtgagcatcg	2460
caaaggcttt	cttctccgta	aaattgcttt	tcaaagcgat	acagtttggt	tataattcac	2520
cccgcactcg	cgaaattgtc	cgtacaaatt	gtcagttttt	ggtagtaatc	gagcaacgaa	2580
cgatccactt	ttatcaccga	aaggctctcat	taaagaccct	tgctttagat	aaagcggctc	2640

tattttaagc	cccgattgct	cgaatagcgt	taggaaacga	gcaaattctg	tgtcctaaat	2700
cgaaccatac	aacaatggtc	ggctcgttca	ttcttgggag	gtcgcccaca	tttctctttg	2760
tcattacttt	ggattttaat	ggtttgtaat	tcttcttctg	gaaatagaac	gtgctaaaca	2820
taattgaaat	ccattagaga	gcttcacgat	aaaatagcca	atcaagacaa	cgaaaacttc	2880
tatccaagaa	cccgaacttc	gaggtgttct	gccctctgca	ggagcaaggg	ttttgagtta	2940
cgaaataatt	tcgggtaacg	caagacatac	cttgetattt	gcactgacga	aataaattcg	3000
ttccgaagaa	cgatatgtta	ttctctcgaa	atgtatgttt	caaagccatg	aaataccgac	3060
ttatcgctta	ctgcaaagtt	actaagcttg	tgcctaaatc	ccttacctca	tacgaagcca	3120
caactatcca	aatcgagcca	caagtacgca	ctaaagtaaa	tcacgctgat	tacagcatca	3180
ccgagcatat	atttgcaccg	tcgaatatgt	cggtggagga	atgtgtcttc	gatgtatcac	3240
gattcgatga	gcgatataag	cgagggggta	tatcgaagaa	cactncttga	ttcttttact	3300
tgaacgtgga	aatgtgtgaa	agcagataca	atgaacgatt	gtattgatgg	acatcaatga	3360
acatcttcac	aaaaagggtg	taacgaaagg	atgtagccct	gctgtacaac	cccattatcg	3420
ggcatatctt	gatagtggat	gtattcatct	ttgcagg			3457

(2) INFORMATION FOR SEQ ID NO:896

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 642 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...642

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:896

agtatgtgta	tcaatttggg	agtattgtcc	tatttcaa	acttcaattc	ctcggtgaga	60
tgctttttct	tctcattcag	gaaatcggtc	tcgtgaccat	cgcccggagt	ggatcatgac	120
cgattgggag	cattgggaca	ttatactcct	gtgggggatct	cgttctatac	ttttcagacg	180
atgagttaca	ttatcgcat	tatcgaggtc	aggtgcagcc	tctaaaacgt	tgatagatt	240
acgtctctat	gtctctttct	ttccccagct	ggtagccggc	cccatcgctc	gcgccgagat	300
ttcattccgc	agatataccg	ccgtccggtg	ttggaaggga	gggatatgcc	gaagccctga	360
tgttgataat	gggaggtctc	ttcaagaaag	cgtcatatcg	gactatatca	gcctgaactt	420
tgtggatcgc	gtgttcgatg	cccaacgctt	tacaccggat	tggagaacct	tatgggggtg	480
tatggctacg	cctacagatc	tattgcgact	tttcgggtta	ttccgacatg	gctatcggtt	540
agctctgggtg	ctcggtctcc	gcttcaatat	caatttcgat	tcaccttaca	gtcggccaat	600
atcaccgagt	tctggcgcag	gtggcatatc	tctctttgtc	at		642

(2) INFORMATION FOR SEQ ID NO:897

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 831 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...831

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:897

```

atttaccacc ttgcccgaca caccttttgcg acgatgtcgc tcagcaaggt gtaccgatgg      60
aaagcgtagt aagatgctcg gtcacacgaa tattaacac gcaatatatg ctcgatatcac      120
caccaagaag attgagcatg acatggacag cttgcgaaca agctcggaaa gttcaataca      180
gcgatgggcg tttaatagat tgtacaacta taaaatcaga catcattatg aaatctacag      240
aaaagaagaa ctgtcccact tccgttttgaa gttggaaact tacctcaacg agcatttccc      300
gaaatgtcgg gaaacaatcc attcattaca gcacggtcgg atgagcgcgtg actgcctact      360
gtgatgccgt ggcacaaggc ttctctcatc ccaagccgag agtatggcaa gcgaagtcct      420
gtatcaaggg ctgcatttct ccgatacgat acccttgttt ccgtcttgga gcgggagttc      480
gagcaggaac gccgtcacct cttcccgaag gactcgctcc gatactgcta aaaaacaagc      540
gatacaaagc gtatttgcca agtatgacct tacagacgac tttgaggcag tccggaatac      600
gaacatctct acaccgaact gacaggcacg atagtccctt tatcgaaagc aatcacctgc      660
ctacaatagg cggagggaac gatacctata atcacccaac atcggaagcg tttcagtatc      720
aagagccaag atatgactcc gcttcacacg acaagggaca agctcttgtc tttgtgtcgc      780
gcacatcttg tccacgctct tgaaactcta aaatgctttg atatggatat a              831

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(2) INFORMATION FOR SEQ ID NO:898

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 362 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...362

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:898

```

cttcttgcac gaggcggagc ataaattcac gttcattgac agctcgggtga agctccgctt      60
gatgtcggca gccaaagtcag gagggacagg cttaccggag ttcgcagttc tcgctttttg      120
tcctgtacgg tcttctccat cagatgctgt agcaatcggc gaatttcttt ccgtctgacg      180
gtatataaga tacagattgc cgtggatatt cagctctctg cgcagtcctat agaaaggctg      240
catacatcgg ggtacttggt actccaccag tccttaaagg cctcattcca tttctctttc      300
cgctttgacc ttgagtagct ccatgatctt gctatcgaag agagcgatgg cagatctatg      360
gg

```

(2) INFORMATION FOR SEQ ID NO:899

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 392 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature
(B) LOCATION 1...392

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:899

ggcgaagctg	cccaacgact	cgaaattcta	ttgcgtgcat	acaaaagacc	gacaaaaaga	60
gctaccgcaa	cgagaccgag	ctgatgtaca	aactcgccaa	gaactccgaa	gcgataagta	120
caaagcggac	gtaacgaac	tggctattcc	acttgggtag	acaagatgga	cgaagccaac	180
aaagctttcg	accggaattc	gacctccaca	gccggcgaat	cgggcgaatt	gccccaaatc	240
ccctcgaacc	gtcctcaccg	agtggcggat	ccgataccga	tggcagcagt	agcgcgagcc	300
gggttcgcac	agcggcgatc	tgtagccgtt	agcacggcag	ggaggatgta	ccaaagccaa	360
accactctct	gcctgcatcc	aaagagagag	gg			392

(2) INFORMATION FOR SEQ ID NO:900

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2121 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature
(B) LOCATION 1...2121

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:900

acgacaagga	ggtcgaaagg	ccgcagcgtc	ttatctgccg	actcggcagg	acagagccat	60
at ttggcttc	tatcttggtc	agcaaggcag	ccatctcgca	cgccccacat	ggatcacttc	120
atctccggcc	ataaccgctc	gaacggagcg	atgcccaacg	actccacttc	gtccgggaag	180
aaagaaccat	cgaccaggtg	tgattgatag	tcggattgag	aatggcaatc	atattgaggg	240
tctgcccaca	tcgggacaat	tcgtacaaga	gagggataca	taggttttca	gctcatcggc	300
ccattgatac	ggcggattct	atcctgtact	ccttcatcgg	ggaattcctt	ccgataaccgt	360
cattgttgag	aatagcaaga	agcagtgagc	taattcatgg	ccaccgggga	taccacggaa	420
gccgatcccg	ctatccgctc	ctctacgagc	agatcgatac	gaaaatcatc	tgccgcattg	480
tattccgcac	aacatgatcc	gaaacggatg	caagcccac	gagcatttcc	ttcgccctcg	540
gtaggaagga	tgagacgtat	gagcattgag	tcgtaatgta	taggactttt	cagttgggca	600
aagtaagaac	ccacttgggc	aagagtatct	ttatcaacat	agtcgttagg	ataatgatta	660
aaaaggacct	taatcaagag	ttccgatata	tactgtatt	cggagaaaca	gcatggagaa	720
ctctttcgtg	ccttaagaaa	gaggggtgtg	tgtgatcgcc	tcatttttgc	attccgacac	780
acccctctcc	tcggtttact	gcttagatct	taccaacgag	atcaatgctc	ggttcagtgt	840
ctgctgacct	tcacgccact	tgcccgga	tacctgacca	tctgagcagc	tacgtattgt	900
gcagccttga	tcttacggag	gatctcttct	gatcacggcc	tacgctgttg	tcgttcagct	960
ctacgatttt	gataatgcct	cgggggtaat	cacgaaagag	ccacggtaag	ccatatgaac	1020
atcatcgata	ggatacccag	atcgcgagtg	agtgcaccgg	agggatcggc	caacatggat	1080
actgtacctt	cttgatagca	ggagaagcgt	cggcccaagc	cttggtgcga	agtgggtatc	1140
gcaactgcaa	gagtaaacct	ctactccaag	ttgcttaatt	cttcatat	attggccagg	1200
tcttccaatt	ccgtcgggca	tacaaggtaa	agtcaccggg	atagaaaacg	accaaagacc	1260
acttgccctt	caagcttcgt	tggtgattac	tttgaattcg	ccattgtgat	aggcattgag	1320
tttaactcgg	ggaaaacggg	gttcaggata	ggagtcataa	tgcttttgtt	ttagtttagt	1380
atgaacgttt	gtttcagggtg	caaaactatg	tgtactatcc	tcatccacaa	cagcctcgat	1440
atatcagacc	attgaccgca	tctatataag	gagactgtcg	cacggtat	tcttgagat	1500
ttcattgtca	atcgactgat	tttagtgcct	ttatagatat	aagaaacctt	ctcttttttc	1560

aaaggtctaa	ataggctatg	aacatggatt	tgtggacatc	gtgttggtg	aggggagtga	1620
tattcctcgt	ttgaaagatg	acaggcagtc	cccttcgacg	accaccggag	aatggaatga	1680
ggaaaacgaa	aactgcgcct	tcttataaaa	cattagaagg	cgcagttttc	gtttaaatct	1740
tagctctata	aatcaaggaa	ccaaacttta	aggaaataca	ttacaccggt	tgccgttata	1800
cggacaacat	agaaccgggg	acaagggatt	catttttgac	aagttgacca	gttgcattga	1860
atcttccatc	ttggaatact	cttccctctac	aacaattttg	ccattctgaa	ctatgctttg	1920
acagaggggg	tagcaacaat	ttgttctgta	gctgtaggct	tgctttatca	aggctttctt	1980
gcccggcatt	gataatagaa	tggttttccc	attggacatt	ggatggtgta	cgaaagcaag	2040
aacatctgta	tctttaattc	aaagccatcc	aacttaaatt	ctttcttgat	ggtaaaactt	2100
ccatcggtgc	aatattttaa	g				2121

(2) INFORMATION FOR SEQ ID NO:901

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 598 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...598

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:901

aagctacttt	acgatcgatt	tgctgaacga	tggagacttt	catcttcgat	tgttggcgag	60
tgtacgtaca	cgcataatcct	ccggacgttc	gatctcggtt	cctctacgtg	acgacggatc	120
agatcgagga	attctttccc	atagcgatag	ccttgccgac	acccacgccg	ggaatattct	180
gcagctcttc	gatcgtagcg	gatagaacgt	agccatagcc	tccaatgagg	gatcttgga	240
gataagtagg	gaggcaactt	gagagatgca	cccaattttt	ttctgaggtc	tttctcatgg	300
cgaacaggac	cggatccatg	gccccaccgg	aacctcgccc	tccaccttag	gagcatcgtc	360
atcctcgctc	tcttcgtttc	catcgacgat	ctgaaagaaa	caggtttgag	ggcaaacttc	420
ttgcctttgg	ctgtcacttt	cgcagaccat	aatttttcgat	gtcccgaactc	aaatagccgg	480
aaagcagtcg	tgcttgatga	cggctgtcca	tggtgtctcg	gtttcatcgc	ttccgatacg	540
aagacctcta	aatcctgatg	tccgaatgac	tctatatcag	gagtcaatcg	cccatcaa	598

(2) INFORMATION FOR SEQ ID NO:902

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2130 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2130

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:902

tcagctcggt	accgggcca	tagaaagttt	ttgccaacca	ttcccgtttt	tctcgagata	60
gcattttag	aagtcttccg	tataccgatg	agctgtctca	tggtcgcgga	aaggaacgga	120
tggtccgaag	aggggtcaag	aagggtgcgtt	ctgccacgat	agccctgaat	tggtcgcgat	180
tctcttctcc	ggcatatgtg	ccagagagcg	ttgcatctca	ttgtagtaag	cggagggtgat	240
cagctcttccg	tctcttccgt	tatgatcatg	cggacgatgt	cctgagagag	gaagtagcca	300
tttcaccgac	gagaggtatg	gcacgagctt	tcccatcgcc	atcttccgaa	acttccgcag	360
gcgtagtcgg	cagtcttcat	tgagctgctt	gaataagtac	gaagcttgac	tgaatggctt	420
gcaggcctga	tattcatcca	tcatccagaa	gacgtgaggg	cagttgtctc	tgattcatat	480
cgaatgccga	agcagttggc	tattgagctt	gtctttccctc	ccctttatct	cctgcttggt	540
ttctccaaag	tcgtttcagc	cttttccctc	cggctcttgc	tcttcggatc	tgtggaggga	600
taaatcgggtg	gcgcattctca	gggaataatg	ccgaaaatgt	agttttccct	ctgccgtttc	660
atccaggatc	cgattcgctt	ttctgagaaa	tcactctgca	tacggctgaa	gctccctca	720
cacagcaact	ccatcagaga	agcttacgaa	ggttgtgcac	actgataaat	cccatcgact	780
gaggttgctc	aaggccctct	tctccctgt	cttactctta	ggatatacag	ggtggatgta	840
tggaatagc	ctatcttatt	gtcgtatatg	gcatagcggg	gacaaagaga	gagaagcgta	900
cgggataaga	cgcctctcca	ctgatcatcc	tcttacctct	tcttcattct	ggaagtctga	960
cagcttgccg	aatgccaaag	atgatccggt	atcgtgcgat	cgtactcacc	attccggcct	1020
acctttttga	gtaagaatcc	agctcgattt	cacccaaatc	gacacgaaag	cgtatacctt	1080
gagcagatcc	atctcctcga	taaaacgaag	catcagatag	gggaagcatc	ctgatggcgg	1140
atcctcttgg	tcagtgcctc	tgcccaatcc	gaagagcgtc	ccaaagcaat	cgactctctt	1200
cgttcaggct	gttttccgag	aggttttcat	gctattttcg	tccagcgcag	ggaggaaactg	1260
cgcccgcctc	tcttggggag	catatcgtaa	aggatgcggg	ggcaacgggt	cagttcgttg	1320
agctatcgag	caagagagct	tctttcgtat	tgctgctttc	gagcctgtcg	tgggatgacg	1380
gatgcagaga	tcgcagaagg	tctcgtgcac	ggctcgtgcc	cattctcatc	ggttcgtttg	1440
aatccgcgaa	tctgtctcag	cataccggaa	cctgctccct	atcgaggaag	aggcaaatga	1500
aaaaggcaag	gccactaacg	tcaggcattc	ttttccgtcc	gctacgctta	tcaattgttc	1560
cttctgtct	tgccaggac	aaagtcgtcg	ggcttgaaga	aatctgcaaa	ccgcgatgtg	1620
ctctcccga	tgccaaggag	tatgtcccgg	taataaagga	gctgattcag	ggctgacttc	1680
gagatgctcg	aatgtagtgc	catcaagccg	attgtcgaga	agtcattgcg	caggaaatca	1740
agtaaagaat	aaagctctct	gatcgctttt	gggccgaatc	gggatccaca	ccggtcttgc	1800
tatcatggte	ttttcgatct	gactatccgg	atcgaaataa	tgagggaaag	gcagatagcg	1860
tcgtatggc	catagacttt	ggtccagcga	tcgacggaga	gcagggtgatc	aaaagaagag	1920
attgcttgag	cgactcttca	ttcaatttct	tcttcccga	ttaatgcgaa	catgactttc	1980
gaacttctatc	aaattctctc	gtgcgaggtg	agataaagtc	cgaagtactg	cggatcgtct	2040
tccactgtac	gggattgact	ttgttttcag	aagcaggaac	tgtattcata	ggtttgagtt	2100
ttcttgtcta	tcagcgatat	ataaaatgtc				2130

(2) INFORMATION FOR SEQ ID NO:903

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 474 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...474

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:903

atttattccg	aagtaaggac	ggaacaagta	accgttcaag	aagaacagaa	gagtaaagcg	60
gtcggcgagat	ttgtccaccg	ctactttctt	tcatgagcgg	ggaaatggcg	aaaaagaaag	120
gagcaaaagaa	atccgataaa	aagcattcgt	tatttttggc	agtgagcaga	tattctttgt	180
ggaaaatccc	cctaaatcta	tgccccatat	agcaatttac	agtagctttc	tgaacttcat	240
ctccgcaacc	tgttgatttc	atcctttag	gtctcaagat	ggtggaggat	gatgtttcca	300

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catagatgcc gatggtcata tccctattcc tcatagacat gacatctccg ccaatgtatc 360
ctgtaactct ttggcaatat agatgggtctt gcattttttca aagtattgcg acagatgaaa 420
agcgactcat aatcgccttt gcggattttc gcctttctct tcttgaaact ctng 474

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(2) INFORMATION FOR SEQ ID NO:904

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 2249 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...2249
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:904

```

ttttaattcc ccttggtacc cggcgcgaga aataaaaaat ttacgcgcca aacgaaaaaa 60
ctgtggttcc acttttttcag gaaactcaga ccgcaattca gatttttttg gacgtatttc 120
cgaggtgacg atagatcgaa ctgcgcgact acagcatata cctcctatct ttgccgagaa 180
aaaggagaat acccgaccga aaggcgatag aaccataggg atataaatga ggatattctc 240
catcaaacgg catcaggcta atatgacaaa ggcttacggg gctggctgcc cttcaaagt 300
aaggcagagg aaacgatcag gcgaatggat gaatccggcc ggtcggacga tcattttctgt 360
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cccattgaga tgaatatctc gcttgaggag gtattcatcg cagtcgcgcc tcatacaagc 660
tcttgattcc cggacgactg gtttgttcag tccggaacga tttgtcaaaa tagagaatgg 720
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```

(2) INFORMATION FOR SEQ ID NO:905

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3110 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...3110

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:905

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ctcgggtaccc gcgatttggt agacatcgat acctctatcg ccatgacttt atgatgctgg      60
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ggagatcttc gacatccctt cgcacataca cctgtttcca tattggctct cggctatggc      180
gatccgaccg tacctcgcgt gaggctttca atcgcaaac cattgaagag gtagtcagct      240
tcgagaatta tgaaacgttg gtcaggttta gcggccgttc cggggatgat catttcggtg      300
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tgtcggttac cggagggtac gatttggtgg gagacggttg ttaaggatga tccgcgcact      720
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aaccgccgct atgaataaca tgaaaaattc ataatgatgc caattactta agtgagttat     2040
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cataaaagcc gggatacgaa ccatatcggg gatgagattc ttgaccaagg tactaccatg     2460
ttggagcaga tcaatacaaa catggtggcc agtcccatac cataccgttg atggccgacg     2520
ttgtcgtggc caacgtagga cacataccag gaggaggacg aatgtcgggt tctccttgat     2580
aatgccgttt ataataaact caaattctta ctcatcgcg ttcgggtatta tctgtgttag     2640
tatttacgta gaatcagccg gagctgcctc gacagactcc tgagcctgtc cggcatgcct     2700

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actcatctgt	acaccacgta	cacttggtac	agtccttctt	ttttggccgg	cgttcggaac	2880
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gattttgcc	tccatataca	atccgtacat	cacagtgaac	ttaccgctaa	gcccttgtct	3000
gtatagcttt	ctacagcgta	acccactatt	tcctgacctt	tttggccggg	aatacgggtga	3060
gcttggtctc	atctacatca	acttcgatct	ctcttcgtac	ggattgttgt		3110

(2) INFORMATION FOR SEQ ID NO:906

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 859 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...859

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:906

cctgtttcgc	cgtaatatatac	tgttttaatt	cctgtatggt	gcaattgaat	ctgcaaactc	60
gtacctatcc	actgcaggct	tggcttcggt	ttaattccgt	atggtgcaat	tgaaatagct	120
ataaccctcg	atgagtacta	cgagggaatg	gcgttttaat	tcctgtatgg	tgcaattgaa	180
atgaagtagt	tctcgccgct	accgagaacg	cttcttcggt	ttaattcctg	tatggtgcaa	240
ttgaattttt	cagtcggtag	cgaaaactac	tttttatttc	gttttaattc	ctgttggtgc	300
aattgaaata	acgcatttta	tgtgcgccaa	gataattggg	gcagttttaa	ttcctgtatg	360
gtgcaattga	aatttacggc	aaaagggttt	agtaccta	ggaaaaatcg	ttttaattcc	420
tgtatggtgc	aattgaaatc	attttacaat	ggatgccgaa	accgacagtc	taagttttaa	480
ttcctgtatg	tgcaattgaa	ataagaaaga	agaaagaata	agtagaaata	aagatgatgt	540
ttaattcctg	tatggtgcaa	ttgaaattaa	tgttacacaa	tggtatacga	tgatggtaaa	600
cttgttttta	ttcctgtatg	gtgcaattga	aattttacaat	atctaacgat	gatactatag	660
tgcagttttg	ttttaattcc	tgtatgtgca	attgaaatta	aatcaatcag	acagtatcaa	720
atgaagtgcg	gatactttta	attcctgtat	ggtgcaattg	aaatctataa	aagaaattcc	780
aagaagcatg	attctgaggt	tttaattcct	gtatggtgca	attgaaatta	gcaacgaaga	840
cgattttttc	aatgtagta					859

(2) INFORMATION FOR SEQ ID NO:907

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 917 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...917

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:907

atatggagaa	gaatgcactc	agctcaaagt	cggaaagggc	attctctacg	gccggaagtc	60
gaaaagggtg	gtagcccatg	caccnagggtg	gaagtccaca	tgctgttgag	ttcggcatgt	120
ttgaagtatt	ggatcagggt	gaagagcgca	aaacgaatcc	tccgccaagc	ccgaaaattc	180
gtcgtgccat	cagcgggtga	tgatggcatc	gtcctgccgg	cggggttgct	ccttcacac	240
accctgtcgg	gagggagcga	agccaaggac	aaggcggcga	aagtgtccat	gatggattga	300
cccacagcat	ttgcgtcacg	gtaagggcg	actccgtacc	cacaatgcgc	cgatcagaac	360
gatgatacag	gccacgacgt	tgatggtcac	ctaaagagga	taaaacggcg	gatattccga	420
taaagcgatc	gtcccacat	acggctttgg	caatgctgct	gaaagaattg	tccagaatgg	480
tgatgtcgct	gcctctttgg	ctacggcagt	gccatcgccc	atcgagaggc	ccacctgtgg	540
cggttgagtg	caggagcgtc	gttcgtgccg	tcgcccgtea	cggccaccct	tcgtgagctt	600
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tgacagtgga	gacgcca					917

(2) INFORMATION FOR SEQ ID NO:908

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3397 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3397

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:908

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gtgcgtcgtg	agatagcgcg	tctggcatgc	atcagttggt	acaggatgga	cgtatccacc	180
cggcacgcat	agaagagtgg	tatccaaagt	aagaaaacag	gtggaagaag	agatcatcga	240
gacggcaaac	ggacgggtgat	cgaccttgga	atccacggtc	tgcatccgga	actgtccgtc	300
tgatcggtaa	gatgaagtat	cgctcttcct	atgggcagaa	tctttgcagc	attcgcgtga	360
gacagctaac	ctctgtgcca	taatggccag	cgattggggc	tgaatccgaa	aaaagccaaa	420
cgcgcgggtc	tgctgcacga	ctcggcaagg	tgcccagcga	tgagccggaa	ttgccacacg	480
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ggagcgcacc	acgatgaggt	ggaaatgatg	tcctcatagc	tcctatcgac	aggtgtgcga	600
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ctgaatgatc	tgagcaact	cgccattcct	atccgggcgt	tatcaagacc	tatgctattc	720
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gcaagactaa	tctgctggat	gcgctgcatt	tcctctcttc	tgctgcagtc	atctttccgt	3060
accggacaat	atggttgctc	gacatgggaa	gaaatggccc	tggtgcaggg	gctttatcgg	3120
gatgaaagcg	gcgatggata	gagctgctcc	tttctattcg	tccgggggaa	cacaaggtag	3180
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tggtacagca	gctttgccag	caggatcctc	ggatctgtcg	gctctcattc	agtacaatcg	3360
gcatttgcaa	cagcgcaata	ctgctcaagc	aggaccg			3397

(2) INFORMATION FOR SEQ ID NO:909

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2031 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2031

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:909

cgaggttgat	ttttgcattg	ggaaaaacga	tcatggctca	actatttgaa	tcgattattc	60
gtcatgcaaa	ggcatagcgc	aggatgaaaa	gaacagccga	atgtaaagag	gcagggatat	120
actgcgggat	tgtccggaca	agagtttaca	aagacgaatg	ccaacatccc	caaggccatt	180
ccctctgcga	tagagtgggtg	agtaccattg	tcagcagtg	gatgaagacg	ggaaaagtct	240
cggacgggtcg	gacaaatcga	tcacgaaat	ggatccgagc	ataaataccc	ctacattaca	300
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cgatccgctc	tccacataag	tgttaccgtg	gaggtgccca	gtatggcacc	gaggcttgta	480
ccgatggcat	ggccatcatg	gcctgcttga	tattcttgac	attccctttt	tcgtccatct	540

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aagtgggact	taggctctgc	ggagagagat	aggggcaaat	ccttcgggaa	tggctgtcac	720
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cgaagaaagc	gttgatcccc	atgctcggag	cttgagcgaa	gggcagctgg	ccaaaaatgc	1140
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ggtacccttg	cccgtgtaat	ccatgtcgat	gaagaagaag	gtgcttcccc	attgtcgggt	1920
gtgaagtttt	ccactgtggt	agtcagtttg	ggacgtccat	tagttcgtcg	tagatggaat	1980
gaccgaaatc	gtagtgcac	tgcacgtttg	tgcgttgga	cataggccga	g	2031

(2) INFORMATION FOR SEQ ID NO:910

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2367 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2367

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:910

ggtcaaagag	tttgaaagga	tctgattctg	agcgatagcc	caagagattc	atggtcttct	60
gtcctaattct	gcatcaatgt	atgctcgaat	gcgagtgtct	ctcttgagg	atctgtgccg	120
gatttggttcg	ttgcaatgta	ttgagagacc	gtgcgttaag	tgcaaaatga	aggctgtgcg	180
gtgagggaga	accctcgcac	agccttcggc	ttgtaatgtg	atatgaatgt	cctacaggat	240
attttttcga	aaggaatcaa	aaacgcattc	tgttcgcacc	gatgtttaca	tcacccgccc	300
attcctccca	tacctccggg	catggccggg	gcggcaggat	tatttcttct	ttgtcagcga	360
taacgcactc	cgtagtccag	aacataacctg	cgtagacgct	gcattttcca	atgctacacg	420
tgttactttg	gccgggtcga	tacaccggta	gtgtagagg	tttcgaaaac	atccgtacgg	480
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cctgtgggtt	cgtcttcggt	ctcacccttg	agaccttcaa	agcagctatg	gcacgaatgt	660
atgccgtacc	gccaccgggt	actgtacctc	ttcgattgca	gcacgcgttg	cactcaaggc	720
atcttctacg	cgatcttctt	ttccttcatt	tccacttcgc	tggcagcacc	cacgtaaaga	780
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cattgttgct	tggtttgtta	ttgtagttga	ttgtttgcct	gtacaaatgg	gaagcctctt	2340
atgtagctcc	gcatttttat	gtcaata				2367

(2) INFORMATION FOR SEQ ID NO:911

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3325 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3325

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:911

aagtgtggct	gtccaccacc	accgccctgt	atatgcttgg	cggcacttct	accagtttgg	60
ctgcatccat	ccctccctcc	gtgagatctt	tcgaaagctc	actgtcagcg	cgcatttttc	120
accaccttcg	tctggtcccg	ctatgagacg	aagctctctt	gcagttcgcc	ggcaatttgg	180
aaagctatat	ccttggcgtc	tctgcctcca	tgatctcctg	aaagaggaaa	agacggatac	240
cacgggacga	acatcctgct	cgagaagcga	ctttttgaac	ttcagcatgc	gctctgcttc	300
atgtccgcta	tctgtttttt	cagacttgca	tctcttcga	gcatttcttg	atggacttga	360
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gaactttcgg	aacgatacgg	aatgcccgca	tcatgcctgt	agagggaata	tgtgtacctc	540
gcacaactct	accgaagagc	cgtacttgag	tcacgcact	tcttcgccta	cttctctccg	600
aagagggcca	tggtcccat	agcctgtgct	tcggcaacgg	cacatcgcca	aactcttccc	660
gttggaagtc	ggcacgtatc	cgctcgatac	caattcttcc	accttgccga	tctcctccgg	720
agacatcttg	ccgaatggga	gaagtcgaaa	cgaagcacct	ccgggctgac	aaacgaaccc	780
ttctctccac	atgcgttccg	aggacttcgc	gcagagcttc	gtgcagcaag	tgctagccgt	840
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catctctgct	agaaaggagt	gtccgagagt	accacctgaa	agtattcctt	gtttttcttt	1080
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ggattcaccc	tcacgtagca	ctacccagtc	gccggctcta	cggcagcggc	attacgggca	1200
cgctcttttt	gcttctgcat	ctccggtcga	agcctgatcc	gtccaccgtc	atcccatttt	1260

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ctaaaggatt	gtacccctct	aatgcctttt	aggggattga	actttttcct	catcgaatga	3180
cgcgagaagc	tctctatgag	gagttgaata	tcgctgtcct	gagagccttt	ctcatgctcc	3240
aatttatatag	ataaacgatt	aaatgatagt	tagatatgtg	ctggaatacc		3300
taatcttttc	ggccgattaa	gccgg				3325

(2) INFORMATION FOR SEQ ID NO:912

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3171 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...3171

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:912

gggacatcga	cttgcttcgt	ctcaatctga	ctgaataactt	accggattcg	cttcctcttg	60
tattattctg	acaggcatga	gcggtaacga	acagaccgga	ggatcgcgac	ggaattggta	120
agttcattcg	agaaaaagg	aaagaattcc	aaattctcca	ccttgaagaa	tcggacgctg	180
cactcaaaga	gatgacgctt	tgcgtgaaaa	gggtatatct	gttttcgcta	ttgctccgag	240
tgtagacgta	gtgctttggc	tgttgaagtt	agctttgggg	cggatgtttc	cttggtgttg	300
ctgaaagtat	gcactcgaag	agaaatgata	aagacgaagt	tgagcattta	tctgccaaag	360
ccgctgtcct	gcttttgtgc	tatggttgga	tagtattaag	ggggcattca	tctctctaac	420
tcaaaattat	tatgggtatt	accggagcat	attagacacc	gatctatata	aattcaccac	480

cggtatgcc	atgccaagct	attccccaga	gcttatggcg	aatttcgctt	catagaccga	540
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ccgatatata	tcgattttct	cgatggttcc	gtttcgatcc	ggaagaagtt	acagtatcga	720
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cctgctgtat	cctcatcatc	ggttcgccct	cctgatcggg	gcggacaact	gcagagcttc	1920
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acaaaaacgc	tgaaaaaaga	caagctatgg	aagaagaaag	aatggcacgc	tcgtctgcct	2220
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gaggttggtg	aaactcaaag	aagccggctg	taatgcgaca	ttttccagat	caggcccgan	3060
agcgatgcct	ggtacgaatc	cgctataagc	cgtggagccg	tttctcgaca	ggccgacagg	3120
gacaagcccc	tacgcctttt	gggatccact	ggcttttatg	gtcagcgaat	g	3171

(2) INFORMATION FOR SEQ ID NO:913

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 6049 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...6049

gacggctctc	caacattcat	acctttgacg	ccatgccttg	cctaggcaca	gcattgacga	60
cttggatgta	tctctcattc	gtaaggagtt	tttggccagg	ctgtggcaga	ggatgttctc	120
ggtgaagaca	aacgagatat	cacggataat	ttgcctctct	tggcttatat	gattttgcgtt	180
ataactgtcc	gactaagggg	ctattgtcct	attcggaaag	aatcctgagc	gacacgtaca	240
tgggggtata	ttcaatatgt	tcgcttcaag	ggtaaggatc	gtgcgggtga	tatttcaacg	300
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tattttgcaa	aggtctctat	agaggaagag	actaaaattt	tcaaacgcga	tcgtcctgct	3660
gcattgtcca	tttagaaata	ttcttatatt	tgcaccgtca	ttaagagatg	cctcatgtat	3720
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gcgatttaca	cccttttcta	caccagaaaa	tccgatagcc	tataagacga	taaacgagcc	3900
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gggcgcaaa	taggaggacg	aagatgaacc	ccccaatgca	ccctttcagc	caccgatgga	4440
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cttatgggcg	acctgatgca	atggactggg	agaggaacat	ccacattcaa	accgtttctgc	4980
atctcaacaa	aggagatgca	atgctcgtgg	acacataggc	acagaactga	acaacaaaaac	5040
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ctgcctacgc	gagtttagaca	cagacttcac	ggccaagacg	cacagccttt	ctcctaccaa	5220
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aggctagcag	aggacgctat	cagttcaacc	cagacttcct	tactgacaca	tcgggttcggt	5460
cgggcgcagg	ctatatatgc	ctgaccaacg	accaaccata	aataaagaat	ggtcggacgg	5520
aaggagtgcc	tatagtaacg	tccgaccgac	caaagaagaa	ccgccaaaga	aaaaacagca	5580
tgcagcacac	gacatcaagc	aagtctccat	cgtggactac	ttagcacaag	ctggcttgaa	5640
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aagcctacaa	agatcctcca	tggagctcat	cagcgtacaa	gctgtgaaga	tcccaagctc	5940
ttactgtatc	tctcggagcg	agggctacag	ccctctgagc	ctctcccttc	ttatcggaag	6000
tctattacaa	agtctctagg	aagtgttctt	tgcccgggga	tcctctaga		6049

(2) INFORMATION FOR SEQ ID NO:914

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 706 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...706

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:914

atcggagcta	agctctaccg	ttatgcagga	gatagagagg	taattctcta	gtacttgcca	60
atatactcac	ccttcaaagc	agcattgcta	taccgacttg	tatttcttca	agctctctct	120
tccgcttttg	gtcactttcc	gtatctactt	tcgggtaata	ccatcttttt	catcctgaaa	180
agcatttttg	aatttccagc	aagttcgatg	aagatttttc	cttttatctc	ttggagtttc	240
tcctctcaag	ctctcctttg	gcaaaaagtc	tatcagggaa	taagcccacc	ttttagaagt	300
ttcttctgga	acatcttttg	catctcgatg	tggagagaga	acccaaagct	tccttcgggt	360
cgctcttctt	tgggtagtct	ttcgagcaat	tccgcattat	ccaagagaag	aggtagctcg	420
cgcgtccaaa	ggacttcacg	ctcgagcctt	gtctaaggtt	ttacatatcg	gccccaatgg	480

tattgctgtg	atatctcatt	actcatgaca	attcttattt	aattgctcgt	aaatgtcttc	540
atgggtctga	aaatctcctt	tgcatccgtt	aatgaatcat	attcacctct	tgagattcaa	600
aattaactct	gagaatattc	attaaaacat	tgatagacaa	tatcttcttg	aacttaactc	660
taagacagcc	ccttatgcct	ggatgattac	tacaacctgc	ctcctt		706

(2) INFORMATION FOR SEQ ID NO:915

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 801 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...801

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:915

accgaaaatg	ccgagattgt	tgacgtgtac	tgaaaaaagt	tgacagttgg	cgggatgcaa	60
ccagtatcca	ttatgggcaa	acatttaaac	aactttgacg	ccttagcatc	cttgaggatt	120
acctctcggg	gtcagatagc	aaagtagcat	tgagcagaaa	tatgggtctaa	gtcatgggtct	180
cattcgctct	tggtttgtaa	atttggaactc	gaagataaag	ttcatccggg	cccaatgaaa	240
gtgtccaatc	ccccagagt	gagctacccc	tgaacgaaaa	agaagagtta	gagcgctacg	300
taaagaaaat	cgtgtcctca	agagtcgtct	caagcgagaa	gaatagggca	tcaagcctac	360
aagctacttg	tagagttggc	agaagaaacc	taggcattca	gatacgaaaa	aactccgaag	420
ccaagtagtt	caccgtttat	cgagccagag	cctaggtatc	ctattgctcg	actctgcgaa	480
ctgcttggtc	tagccgtcag	gccttttata	aacgtcatct	caacgattta	gctaggcaca	540
ggaggatgtc	ctatgcagta	gtatcatcca	atattgttgg	cacttaagca	agcagagcac	600
ctacctcaag	ccggcttccg	agagctcatg	gtgcttttca	gcaatacttc	ggccccaaagt	660
tcacgcttgg	gcgcgatcgc	ttttgcccct	actcagacgc	catggtatga	tgctgcgcaa	720
acggtctgtg	cgccccggac	aaccaactct	cggcataggc	tctacaagta	tgaagacctg	780
ctcatacaga	gcctaagttt	g				801

(2) INFORMATION FOR SEQ ID NO:916

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2727 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2727

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:916

tcacgggttg	cgataaaatt	cttttcctca	accttcgtaa	tgaggtagca	ccatcgcgga	60
aaaagatgat	gacatcgctg	aggtcggagc	agttgcatcg	aattcatcgc	ccttgagtc	120
cataccgatg	aacccttctt	cgcgggtata	tagagttttg	cattggcttc	tgccaccttc	180
gtggcctgaa	tggtgcgaaa	cgataagtt	gtgtccttcg	cgggaaacgg	gaagcatagt	240
gctcggcaga	tactcgaacc	aacggatggt	gtaagcagta	atctcacgga	tattttttcc	300
agttcggcaa	tatccttttc	gagctgaagc	atcatggcct	cgtcttgggc	aaattgaagc	360
ggaggatccg	tgccatgcgt	atttccaaca	actcttcaga	tcgtcgtagg	taatggggcg	420
aataaaaacga	tgggcataag	gtccagcctc	gcctctacat	gcagtagagc	atcctgttcg	480
ctctcggcct	ttcgaactca	cgatctttat	agatacgcct	ttctatgaaa	atccgctcgg	540
cgatgctgcc	aaatactggt	cccgcttctc	ttccaaacgg	atcgtcagtc	ttgcttcagc	600
agctcccgtg	ttcgctccgc	actataacgc	agcaaatagt	cactcccaag	aataccggct	660
tgctgctccat	gatgacgcaa	gcattagcga	ctgacttact	tcacagtcctg	taaaggcata	720
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aatggattcg	atcaggaag	acgtcgtctt	gccacagggc	agtcggtaat	gctgagagta	900
cgattgtcca	gtttgcgaat	cttagccctg	ccttgatctg	tcctccgcgc	cggccgtcat	960
tgtaccggct	ggcatccatc	taccacgggt	agggaaatcg	ggataaagat	cgaaagactc	1020
tcctctcagt	gtgcgataca	tgccatgagc	agttcaccca	gattgtgcgg	caagacctgg	1080
aattcaaacc	tacagcaatt	ccttccgtgc	cttggtccaa	gagaagtga	actttacggg	1140
caacgccacc	ggctcgctct	cgctgccatc	gtaagacgtt	tccagtgcgt	aatcttatca	1200
ttgaaaagag	tctcctgagc	caaagtga	gtttggcctc	gatgtaacga	ccggctgccg	1260
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gaggatgcgg	cgttgtagcg	gcttgagtc	tcttctatat	ggggcacggc	acgctccaga	1500
attacgtaag	aagcataatg	agataccagt	ttcgatacat	gcccccgaga	tggtgtgtag	1560
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tcgcaaattg	cgaggcgagc	atttctgacg	ctttcgagca	gttgctccgt	tgggcaaaa	1800
aaacggcacc	acgctgctga	acgaagatag	aagccaagag	tatcagcccc	gccaagacaa	1860
gccccatacc	gatgccgaac	gaaaagaaaa	agcggcaaaa	ggctcccact	tgagagatca	1920
ccggcaacgt	tgaagatcaa	caacacgacg	acgagcagga	caaatacgct	cttaccgagg	1980
tgagtacctt	tatccactgt	ggcgggtatag	cactttccgt	cgagatagct	ttcccatcaa	2040
ttcctgagct	gctccgaagg	gcataccag	cggcaataaa	acggtttgtt	cgtgatcaga	2100
ggcaacatac	ggccaaagca	aacagcccga	tgagcaacca	ctgtgttgca	aagggaatcc	2160
ggtgctcagc	caatggtgta	taccctccaa	gagatagagg	gcctcttaag	aaaaccgagg	2220
aatacaatac	taagcgcaag	gagatagagg	cgaaagggtt	ggcctttgac	ggggaaaaaa	2280
agcaaaccac	agctatcaga	atgcggcgat	ggttccccct	gtgcggacga	ttccccaaac	2340
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ctcgggtgtc	cgctcatgctc	cagcagcacg	taccgaggat	gcggtcatcc	ggaccaaagg	2580
cgatgactac	gggagtagcc	cgttgtaccc	ttccacgtcg	tctgtatagg	gcgatgtgta	2640
gagcaataac	ccaattgacg	cgccttgcca	tccataacaa	tggtacgagt	actatctctt	2700
ggacgatatac	ggctgccatc	gggtaga				2727

(2) INFORMATION FOR SEQ ID NO:917

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3195 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...3195

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:917

gtcgccatgg	ccgctgatgc	gtattactac	accgcgatac	ttctggatag	ctccttgtaa	60
ccctccttga	tacgatattc	aacagtgatg	gtgtcaccct	gttaaacttg	ggatgttctt	120
tccctgattt	gaactcttcg	ttaacgattt	aataaaatcc	atttgatttg	ctttttggat	180
tagctaaata	ctaaaccaat	atacacaggt	cgcacgttat	ttcctgtcag	agattacgca	240
aagcgtgca	aagtaacaaa	aaagctctca	atcggcaaaa	ctgaacttca	acactcatat	300
tcagaagaaa	ctcgttcgaa	tgaaccaca	acaactaatg	acctacaact	ttaattttaa	360
tgcgtcagcc	ctgtataagt	gctgcttatt	gtcaaaggtc	tcatattata	agtacttttg	420
ctcgaaagac	aaactacaag	gtggaaccct	tcgtaacact	gcacgtacac	tcccaattct	480
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ccgggtattg	ctctgaccga	tcatggagcc	atgttcggca	tcaaggagtt	tacaactatg	600
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gcgtattggt	accggatgtg	aacgagtcgg	aaatgaaatc	tcagtaaatg	ccaatgggga	3060
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gccgaacgcg	aagccacggg	ctatataagg	acatcttcga	ctttgtggag	cggatcaatc	3180
tctctcctgc	aatcg					3195

(2) INFORMATION FOR SEQ ID NO:918

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1872 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:919

gtaccgcgcaa	ttacatcaag	ctattgctgt	gatacctat	gccatttgac	gtaataaagt	60
tatttttgtc	tcgcaaattg	atttgctatg	aaaggaatat	ccttgccgga	ggatccggca	120
ctcgtctata	tccgataact	cggggtggag	caaacagctt	ctaccgcgtt	atgacaagcc	180
gatgatttac	taccgcgttt	tacgcttatg	ccttgccgggta	tccgggatgt	cctgatcatt	240
tccaccgcga	ggacttatcc	atgttccaac	ggctattggg	tgatggccgt	gatccgggtg	300
ccggttggag	tatgcagagc	aaccctcccc	cgatggattg	gcaaggcttt	catcatcgga	360
cgtgaatttg	taggagacga	ttgtgcctgt	ctgtccttagg	agataatatc	ttctacgggc	420
atggcttcag	ccaaatgctt	cgtcggcagt	tgccgatgcg	gaaaagggtg	tggccaccat	480
tttcggctat	atgtgaatga	tcctgagcga	tacgggtgtag	cggaagtggg	tgctaccgga	540
aggatcatcag	cctggaagaa	aaaccggaaa	agccgaagag	caactacgag	tagtgggact	600
ctattttctat	cccaatgatg	tacttgatgt	agcagcaatg	tcaaaccatc	ggcgccggggc	660
gaattggaaa	taacctcagt	caatcagagt	tcatgcttcg	caagcagctc	cgtctccagc	720
aactggggcg	tggtttgcct	ggctggatac	aggtacacac	gaatcactga	cagatgcttc	780
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cctacaataa	tggctggctc	accaaagaag	atctggctcg	tgggctgaac	cgatgaaaca	900
gaatcaatac	ggaaagtatc	tgcttggtact	gtcaaataga	gagcatccct	ttcatgaact	960
ttatccccac	cgaaataccc	aagttgttat	ccttgagccg	cgattgttcc	gtgacgatctg	1020
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cgaacttcag	acagtgttta	tcgccgcgcg	attcgctcac	ggttttgtcg	tgctaagtga	1320
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taggaagaca	tcccgcagac	tcctctcggt	gcgtatggcc	gtaccaagct	aaaggagaa	1920
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gaagaaagtc	tttgctctta	tgccatcgac	ggagtcattc	atctggcggc	cgaaagtcac	2640
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cctatcaatt	cccggagaaa	ctcattcctc	tcttcattaa	caatatccgc	acaataagcc	3000
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cgtgccatcg	atctgatatt	ccatcgggca	agaatggcga	tacctataat	atcgggtggct	3120
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gatcgggtga	ccagcggcga	cacctccgat	actacgacga	gatgtactcc	gaacgatagt	3420
gctttttggc	aaattttgtca	tcgtttccga	atcaatcaac	caaacaaatc	acaataaaca	3480
ggaatcaaaa	aatgaagac					3499

(2) INFORMATION FOR SEQ ID NO:920

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 602 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...602

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:920

tctcagcgcg	ggattgtttc	aaccgcagga	gcttcctctt	ctactgcaga	gtctccatag	60
ctaccgaagt	ggccgaatca	gccgctgcat	cttgagcgaa	gcctgagtc	tgaagcctac	120
tgacataaag	gccacacatg	caattgtgca	aataactttt	tcatcgcgag	tcttttgttt	180
agattagtac	ttttcgtttc	ttttattttg	ttccttaata	atcttctgcg	cggagagagc	240
gggatcgaa	ccgcgaaacg	ctttcggcgt	ttacacactt	tccaggcggtg	cctctcaacc	300
actcgagcac	ctctccttgt	cattccatta	aaaactccct	accgtcaact	tgggtgcggc	360
tatagcctta	tgcatacgcc	tcataaccac	gattatgggt	gggaggattg	ccgatcaata	420
caacgtctta	accggattca	tgcgaaatct	atgttttttt	catcattcca	tccctatttt	480
ggagcacatt	ttcagttgga	atacttaaat	cggacgaata	atttttccct	cttgaaacta	540
aaaccgaaaa	aacggcatgc	atttcgggcc	gttttttcag	ccaaaatacc	ggatccagtc	600
ca						602

(2) INFORMATION FOR SEQ ID NO:921

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2483 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2483

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:921

cctagtattt	cggcacattc	tgtaaggatc	ggtatatcct	ccgtatagac	cgcttaacag	60
cagggtgccg	ccattaccga	gtcgggatct	gtagtcagca	tatcgccag	cagaatatta	120
cggttgatgt	ttgcgataat	cagatcgaca	tccgacagtc	ggcaagaaga	gatgcgtcac	180
ctatgcgaac	atcaattccc	gaatatcatt	gagagctgca	ttctcgcccc	tggtgcgtat	240
gcaccgtcgt	ctatgtcgat	agctgtgaca	gaagaggctc	ccaatttgcg	agctagatgg	300
caaggattcc	cgtaccgcaa	cccatgtcca	gaactctcaa	gcccgcaaat	ccatatcgag	360
aagatagctc	atcatcagcg	aagtggctct	atgtgtcctg	ttccaaaggc	catttgagga	420
gaaataatca	gtcgcagcgg	ttatccggat	cggtcgggat	gaaggggtgct	cttacaaggc	480
atgtgtcttc	atccgaatgg	ggcgggaaga	gttcttttcc	cactgttcgt	tccagttgaa	540
tccggttgga	tctcggatga	gtattgccac	agaagccccg	gcagtggaac	tgctccaata	600
gcgcaggaat	gtcggatgct	atatcgggtg	agacaggata	taagcacgaa	ggcaagtctc	660
gttttgctcg	aaactctcga	atcctattcg	gcaagttcgg	cactaagcag	gtcgtatgcc	720
gtctccaaag	tcagtcgtcc	ggacgggtgtg	tgagttcgaa	tgcgtatgcg	atgtatttca	780

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tccgaagccc	ataccgataa	gcagcagagc	cgcggaatcc	gcaggagggtt	ccccccgata	960
ctgataacgg	cggggaaaac	gtccgtgccg	tcccgtagaa	caggccttga	gtggctatatt	1020
ccagcatcac	agtagctggg	aatagccact	gatgcgcaga	taaatacctc	ccgacagaag	1080
gcttcttttt	cgggtaccac	gagtcggaag	acttcattac	cgaagaaacg	aaaagcactg	1140
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tgcaagtggt	tccagtgatg	gcttccagtt	gtccgcctgt	tgtcagcgtt	gccactccga	1320
tattcctcct	tgctgcgaag	ccagacggcc	aagcatcata	ttgatgatgg	cgagagggag	1380
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tcggatatac	ccattcagag	cctttgctgc	attccatcct	tgcgctacca	aggtaactcc	2160
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gtagtcttca	cccccggttca	gagggctgtg	gagagattca	tattgaactc	ttccgcatcg	2340
gctgccgtct	ggagtcgata	ggcaatttgt	cgatcatatat	acggacgccc	acctttcggc	2400
agcgctatat	ggaggaagtt	cgggacgata	gcccgtccga	atgggtccatc	tggcaagtcg	2460
gttgatgccg	gccgacgcaa	ctt				2483

(2) INFORMATION FOR SEQ ID NO:922

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2288 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2288

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:922

tgaaagtggg	ttcgcccatg	gagatgttgt	ccgaagctcc	caccgcgcta	aaatgctgtc	60
caccatgccg	atacgtgcac	tttcggccgg	tacgaaaggc	ctatctgtgc	catcagagag	120
ataagggccg	tctgcctgag	cagggcgact	tgccgctcat	attggggccg	gtgacgatga	180
tgacttgetg	gcggtcgtgt	ccaaataaat	atcgttggcg	atataagggt	catcgccggg	240
tagctctgtt	cgatgacggg	gtggcgcccc	gctttgatgt	cgatggtaaa	gctccgtcca	300
ctacagggca	gataaatctg	tagcggcgtg	ccgactcggc	aaagagagga	gacaatccag	360
agaagccacc	gcttgactgt	cctgttgagg	agtgccacgt	atcgctgcag	ttcggtctaca	420
agcaaggcgt	acagctgtcc	tcgagggctg	ctattttctc	ttcggtcccg	agtatttttg	480
cttcgtactc	ttcagctctt	ccgtaatata	ccgttcggca	ctgacgagtg	tttgcttgcg	540
atccactcgg	ccggtacctt	gtccttggtc	gtgttgcgga	cttcgataag	tagccgaaca	600
cattgttata	agctactttg	agactgggta	ttcccgctcg	tctatctect	gctgctgtag	660
cttgatcaga	tagtctttgc	cgctgttgcc	agtgcacgca	gttcgctcag	cgtggcatcg	720
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gcaaatcttg	tcgcgtagtt	ccttgccacg	ctccaacttt	ccccccagtg	tgccagattc	840

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gttgtagcat	ttctcgcgga	gaaatgcgct	catggcgccct	ttcgtcacca	aacgttccaa	960
gtcgcctatc	tctgtcagat	ttcggcaatg	atggctcgct	cttcaggatg	tcggaagaaa	1020
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taaagtaaa	gtgctgaggc	tgattaaagt	atgtgactga	agccgaatgt	cgcaagaacc	2160
cggcaatttg	cgcattatga	cacaccgcca	tctcagcgtc	aaagtctccg	cttagagagg	2220
ttacgggtaa	gaagagaaga	ggatagaggg	aataggcttg	agtggattat	tcctcgccct	2280
cctcttcc						2288

(2) INFORMATION FOR SEQ ID NO:923

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 716 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...716
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:923

agttgatctc	taccaaatat	cgctatcagc	tggcagcttc	tgtaatgctg	gacagagcaa	60
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gcctactatg	cgggccagat	ctatgccatc	aacccatcag	tgagaaaggc	attctcaatc	180
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tgccgggagc	tttcgagtat	cagggacaaa	agtgttcgct	gcaagtcgcg	catatatccc	660
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(2) INFORMATION FOR SEQ ID NO:924

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 2330 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
 (iii) HYPOTHETICAL: NO
 (iv) ANTI-SENSE: UNKNOWN
 (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
 (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...2330

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:924

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cgtgatggcc	gtggagatga	tattcgggtg	cagatattca	aggacgacgg	gcctgccggc	180
agtgccacca	tcgtacgctg	gtattccctc	tctttgcagg	ggcagcaacc	tttaccacca	240
tcctccgctg	cgtgccgacg	gtatagcgat	gaccaacatt	gccattgcca	tcctatcaac	300
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(2) INFORMATION FOR SEQ ID NO:925

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 2384 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...2384
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:925

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gctccttttc ttcttcgggc tttctcttgc gaattataacc atgggtgctg atttttggat      120
tatgtggcgt ttagaggccg atttagacat aatatacctgc cggagggcgt ccaccaagct      180
gctggctcct atgcggaata tgccggcgta agccattctt tgcccaaaag cgtttcgatc      240
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tacttcgcca aaaagtccgt agtactgtt cagcaccttg cactcgtata ggctgcttca      360
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caggctgcca ccgactcgta ccctgtatat tcgagttgtc gaag      2384

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(2) INFORMATION FOR SEQ ID NO:926

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 7497 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...7497

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:926

accatttcgg	atttgccaa	aatctacgaa	aaggctgtac	agttccccgt	ggtggttcta	60
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caccggttat	attaccgaag	gtcagcttat	ctccgtcgcg	acagcaacgt	aggtaagggt	180
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ggcgaatact	gagcatcctc	gggggcgatg	ccgatagttt	cttccgtcaa	gcccatttct	7440

tcgattactc tgcgatgagt ttgtgcacaa ctccgtggct acaaccgga caatagt

7497

(2) INFORMATION FOR SEQ ID NO:927

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2500 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2500

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:927

gctcaagacc	cctcgaatgg	catattcggg	cagcttggtg	ttgtccacat	gtccacatac	60
aggctgctga	tagcatacac	agccgtttcc	agcttacgag	ggcctctttc	atactactac	120
tgagtttctg	tgcagatgcc	gaacagccag	taggagcagg	agtataatcg	atttgcttgc	180
tttattcatt	ttttacaaat	ctttcttatt	tcagcgtcca	aagatagcac	accttagcac	240
aaacgaaagt	ctatgacccg	gagcttccgc	ttggtattta	tacacctcaa	tacactaatt	300
ccgaaacggc	aatccatttc	tcgtctattc	attatatatt	tgtactgttt	tacattttga	360
ggagacaatc	aacacaatta	aataactaaa	aagaaagagt	atgaaaagaa	tgctgctgct	420
tctcgttgta	ttattatatg	gattgcaggc	cgattggctg	cacaagacgt	tatcagacca	480
tggtcattgc	ggtcggagcg	ggatactccg	atacggagaa	catcccggga	ggattcacca	540
tggtttctat	ttgggaaagc	gtatggggag	ctttctggaa	gtggggcttc	catgtacaac	600
tccacacgct	aaacagccaa	caatgcagac	tcctttgatc	gaacgaagga	gacggatctt	660
ttcaggtaaa	tatgtcttct	ccgaatagaa	gtggctattc	ttcgatgcag	gcagtgcgaa	720
ctgctatatg	atcggtgcgg	agtcaatcct	ctccatctgt	tttggcagaa	tagccggcac	780
aattgtttct	ggcagtacaa	gccggcctgt	ccaataagca	caatattcat	ttctctatgg	840
agacaagggg	gccaaagtca	gtatctacac	caattcgaat	actacatcgg	ttacggagca	900
cgtgtagcct	acgaatatca	aattcataaa	acgtgggggc	gggtgccgct	gtaatgtacg	960
accacggcaa	taagatgctt	cggccatggc	cacgctctcc	actcattttt	agttgccaaa	1020
gctcaatcga	catcgctccg	aaatccgagc	tttcgtaaca	aaacaaaaaa	accttgcaaa	1080
gttagacctg	caagggtttt	atttggactt	tgatccggaa	aggcaccttt	gagaccgtta	1140
tacaataacc	cttccccctt	catattgatc	aagacaataa	atgcattgat	ttgacgaaga	1200
aaggagagct	tcatgcgata	tctctcaaac	ctcaagtaat	ctgaaaaaca	cttaagaatc	1260
aactctgcgg	caaagacttc	aatgaaagtc	ctataaaaata	gttgcaataa	gctgatagtt	1320
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gacactaaaa	tctgctctgc	agcaaaagag	ctcaatgaaa	ctcccatgca	acaatctctt	1620
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tacgatgcac	gggacgaaac	gaccggatat	gtggtaactgc	tccgactcat	agaccatctg	2400
cgtcgaacta	cgaatccgat	ccgaggatta	agaacattct	ggataaaacg	aagtatggat	2460
ctgccctttg	accaatccgg	acggagcata	cagagccggt			2500

(2) INFORMATION FOR SEQ ID NO:928

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4439 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...4439

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:928

agacgctccc	tgaataaagg	agcttcgcca	tcgcgatgcg	taatccgata	aaagatgtga	60
ccaacggaag	cttttgagaga	gaatcgcat	ctgctttatg	atatatttgg	ccttgtagat	120
ctgctccaga	acgataattgc	ggcgtcccg	caacggtctg	tctcccatg	caaacggga	180
ttataatagg	ccggatcttg	cacataccga	ccagaacggc	tgctctctct	atcttcaa	240
cagccgctgc	ttaccgaagt	aggtataagc	cgcagacttg	atcccaacgg	catttacagg	300
aagtcgaagt	agttgagata	catggtgatg	atctcttcc	tcgataaaaa	cgtccagct	360
tcacggcgat	aaccactcg	atcggttttt	ggagaggcgt	ccgagtttgg	tctccgtgcg	420
cggcgaataa	aggagtttgg	cagttgctgg	gtaatggtac	tacccctcc	accgctttt	480
tgattgagga	accgcgttgg	accacggctc	ggaacagacc	tttgctgtct	attcccgaag	540
cttacggaag	cggacatcct	ccgtagcgat	gagagccttg	atcagatcgg	tgaaatctcg	600
ttgtatctgg	tatatatccg	attgtcaccg	ctgtgggata	agaaccgaac	accttcccat	660
cggcagatat	aagctgcat	gcatactgtc	aatgggattc	tgcaaatgct	cgataggcgg	720
catatagccg	atcatccggt	agcaataaac	aggaacagga	tgccgataac	agcccaaccg	780
gcaagaagac	agtccagagt	atccggacga	tcttattggt	tagtttactc	aactcgtatt	840
atctatgaat	tagaaatata	aggagcggac	tctgccactc	ctatcattat	ccggagcaaa	900
atggccaatc	gggagaacga	agggcgaata	aatatccgtc	cgccataatc	cgagattaaa	960
gccactcctg	tctctcttac	acgctatttt	tttcgttctc	tgatcagtc	gtagctgtac	1020
gcctgaaggg	ttttttgagg	ttttcaacct	gcttgctcag	caagtggcca	ttgtccgttc	1080
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tcgcgagata	atagatcagg	gtgcacagct	ctcgcttctg	atcttgccgc	aactgccacc	2700
gaagacctcg	tctacctttc	tccgaatact	accggacgca	ttctgagcac	atggataaag	2760
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ctcttttcgg	aaaaattcac	ggttatttcc	attccgccga	gaacctctcc	acagagaaaa	3060
agtcgccatt	ataccattag	ggatcaaaga	aaagaacccg	tctctgactt	attaaacgaa	3120
gtgaagtgtg	gtactttggc	agctgttttt	atctgatccg	acctactttc	gacattgcac	3180
atcaccttgc	aggcacatgc	tcataacctg	ccaacataaa	aacacgaacc	ggaacgctcc	3240
gactgtggca	cgtgttttct	gaaaaagtgg	aaccgcaact	tttcggtccg	gcacgtgttt	3300
ttttcacttc	tcgcacccaa	agaaaaattt	tccacgccac	gttttttagga	ggtagaaata	3360
taaaaaattc	ggggcgtaaa	catcagaaca	tgggattcgc	gagattatcc	caaacgcata	3420
cttatacgat	gcctccttat	atataatacg	gagtcgtttc	tatgcagctg	ccctatgcaa	3480
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aaagacaaa	agtttgagat	ttacattccg	gcgactccat	acatgaagcc	attaagagga	3600
tggctgcgga	gatcaaacgg	gatctgatga	ggacaatccc	ctattcgtct	gtatcatgaa	3660
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cagctatgct	gaccaaacc	ctgcactcaa	atgcgatata	cataccgatt	atgtaggctt	3960
ggagatcgga	atgactttat	cgtaggacac	ggccttgact	atgatgatct	gggacgcagt	4020
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accggagagt	tgcttcgtgc	cgaacaaaag	ctcagaccga	actgggcca	gcagcagccg	4200
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catagcactt	tggtcgatac	cgaggggatt	atcttcgacg	gatttccacg	tacattcccc	4320
aagcagaagc	catggagacg	atgctcgcac	atcatggatg	gaggtggaca	tagtgctgaa	4380
tctgcaaagt	acccgaggaa	atgctcatcg	acgcctcctg	aacagaggaa	aggtcagtg	4439

(2) INFORMATION FOR SEQ ID NO:929

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 779 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...779

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:929

caagtaaacg	aaacggctcg	gatcgagaac	ctgatttccg	tgcccttacac	acaggatcgg	60
aacttgcatc	caacctcaat	tctcacatca	aggccaatcg	atctccctct	tcgaggcccg	120
aaccgtgtcg	tccatcacac	aacaagaggt	atatcccgtg	tggaagtgc	ttccggagaa	180
gtcttcacgg	ctccggtctt	atcatggcta	cgggtgcttc	atggcgcaag	ctcgggtgtac	240
ccggcagaaa	gaatatacgg	gtaatggtgt	agcctaactg	gctcactgcg	atggcctttc	300
ttcaaaggca	agcgtgtggc	cgtggctggg	ggaggcaact	ccgtctggaa	gctgccatcg	360
atttgccggg	tatatgcgag	catgtcactg	tatagagttt	ctggatgtgc	tcagggtctga	420
tgaggtgctt	caaaagaaag	ccgtgaaacg	gncaatatcg	acatccctct	cagtactgct	480
accaaagaaa	catgggcaac	ggacagaaag	tggagggaat	actgcttacc	gatcgcaacc	540
gggagaggaa	aagcaaatcg	cactcagtgg	cgtattcgta	cagatcggct	tgccgccaat	600
acatcccttg	tgaagatttt	ggtggaaaca	aacagccagg	cgaagtactc	atcgatactt	660
catgccgtac	caatacgccc	ggcataatgc	tgcagggtgac	tgtaccactg	tgccctacaa	720

acagatagtc attgcatggg cgaaggagcc aaagctgctc tttctgcttt ccgaggatc

779

(2) INFORMATION FOR SEQ ID NO:930

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 409 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...409

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:930

aacatttacc	tcaactgcaa	cagtggattg	ttctgtctat	atatggagga	tactaatatt	60
tctcacaaca	ttagaaattg	caaaaactta	taacctcgaa	tactaaccct	taaaagagta	120
aaaagatgaa	aaagttatcg	ttacagatat	tggaactattt	ttcgctgctg	ctgttctgat	180
ggtatttctg	acagggggcga	aaaccgggtt	gacttggagg	acattccgca	agaagcggaa	240
atccgacacg	ctcggccata	ggcgagacgg	ataacggcag	agaatacctg	ggcctaattt	300
ttacctgaca	agttcgggatg	aagtggtttc	ggacagtcga	tccgagcaga	aaggaaaatg	360
ctggcccgtg	catttaacat	tcagaccggt	cttgggagca	attgcttag		409

(2) INFORMATION FOR SEQ ID NO:931

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 2140 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...2140

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:931

gcaaagccga	tagccacca	taagatggct	accgacagat	aaattatttt	ttcttcatcg	60
tggcgaatta	tatttctgtt	gcaaataagt	cgtattagaa	gtgatccgaa	ccaaccgta	120
tatgatacgt	ccgggtgatg	tcggggattg	aatgccaatg	ctttgggttt	ataatcgaa	180
aggttctccg	caccgaatgg	agcgtatagt	tccgatagaa	atgattttca	atatccaaac	240
gacagtcgta	taaccgccgat	acgttatttc	ctcaaacaac	tcgtcggagt	tcacgcgcct	300
gttttcagat	cggaaaggaa	gcgcgtggag	aagtggagg	ctatctgtaa	ttcttcgaaa	360
aattatgtcc	ataagagaga	gtggcagtag	ctcatgagg	cgggtgtttg	agagcttcat	420
ctcagttccg	gccttatcgg	tgccctccat	cgatcataag	tgtagggaata	tgaagctcga	480
aaaccaaaagc	gtaaggcagt	accacattcg	cttgtccttc	aaagccgaat	attctcattc	540
tttcgatacg	ttggtgtaga	tcaaattctgt	gcctttgtag	gtgaaatcat	ccgattgcga	600

acatgattga	agaagacatt	ccccatcagt	gtaagctgtt	ccagtgagct	tctgccgagt	660
atgagagcat	gcgactcttc	tccgggtcaa	atccggattg	ccgtaaataa	agaaagcacc	720
atgattgaag	aaaaatacat	ttcctgcaaa	gagggggcac	gatacccttc	cgcgtaggac	780
aagcattggt	gacatggctg	cacttgtaca	tggcagacag	gcgcgatgta	tagacaagcc	840
gaatccggag	tgcttgtcca	agcgccctcc	atagctcaat	acagtttggg	ggtaacttta	900
tatatgtact	gtccgtatag	gattttgttg	tcacggactt	ttccccggg	tcgttcggag	960
aggaaagacg	ggcgcatgct	cattatcatg	gatatactcc	agaccacat	tgagaagggtg	1020
gacttcagca	gattgagatt	gtattgtgct	cgaaatgggt	gcatatcctc	atcgaaaagg	1080
gaagtttctt	ttggttctca	gtcttgatca	gacaggatc	acggctaatt	tgctgtaatg	1140
ataagagacg	tccagatccg	aagtctcgct	gatacgagct	tggcaccggc	tttgacatcg	1200
taggagttgt	acagaaaatc	gatctatccg	tccagtgtctg	cttacgcaga	ttcaccagtc	1260
cggtaagggt	gaagataagt	tttccgtcgg	agagattgta	aacttctgat	ttatattcca	1320
tgtgtattgc	ctgcaacatt	cagttcctgc	tcgaactgat	cggccaaaat	atacttttgt	1380
ctgctctata	ttgtacgccc	gactgactgg	tgaagatccc	agtttctact	ctgctgccac	1440
atcgattttc	tgtccgctcg	gactatcgta	cgagccgaag	cagatacgcg	aaaaggatcc	1500
ttggctgtac	gggtgatgaa	ttgataacac	ctccgatggc	attagatccg	tacaaagcag	1560
aggaagctca	cgaagcactt	cgattcgctc	gatgtcatcc	ggattgattc	gttcgaatct	1620
attccactgg	tagatcccgt	tgaaatcaat	tcgccatcga	cgaggagaga	atagaacttt	1680
cgtcaaattcc	ctgagcattg	agctgatctc	tggaaacatgc	ttggtaaact	cgatcccggg	1740
aagaatatac	tgcagtacgt	caataaagaa	gatggggcta	tagctttgat	atctttggcc	1800
ttgaacacct	ttgggggaca	ggtacatctt	taagcagacg	ggctgtacgg	ctaccggtca	1860
ccctatatcc	tcaagtgcga	tattgccgga	tacgatgggtg	tcggtagggt	ggccggaggg	1920
ttggccgcac	gggagtatat	acttatacta	aagaaaagca	gccgatgagg	gcctgctttg	1980
ttactacact	tttcatattt	ccctcttaat	tatttaacgg	ggtatgtata	agtgaagtg	2040
atgactcctt	ttttgagtct	gcacctgat	agtcagtga	ctgcactttg	gcaatattac	2100
catcagccca	cgaacgaaga	agactctttt	gcggggatcc			2140

(2) INFORMATION FOR SEQ ID NO:932

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 862 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...862

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:932

ttggttccgt	ttttcccgaa	aagcggtttg	agtttttccc	gaaaaatggt	cgtaattttg	60
tttcttctat	tcttctctct	ttcggacggt	ttcaggagga	gaggaagatc	tttactcctt	120
gcttttgatt	ctatcgatct	cgattatgga	ttttcgttct	tttacattgt	attctatata	180
aataagaaat	gctatcttgc	ggtcgatatt	cctatgtatg	gtcataaaaag	tgacccgaat	240
atgtgggtcca	ccatacgggg	ctaacaagtt	tagtagaaaag	aaagtaatgt	acgtatcgta	300
gacattcagg	gacagcagat	gaaggtagaa	caaggccgtc	ggcgttcgtg	catcacatca	360
aagatgtaga	gagtgggtgca	agcgtagaat	tcacaagggt	ctcctcgctg	ataataatgg	420
tgctatcacc	gtgggttctc	cctggtagaa	ggcgctaagg	tggtatgtga	agtattgact	480
cctcttgtag	aggggataag	gtgctgatct	tccacaagaa	gagaagaaaa	ggataccgca	540
gctgaatggc	catcgccagc	agtttacgga	aattctgggtg	aaagaagtgt	tgcataatca	600
aatcccaaaa	cagaaacaca	atcatggcac	ataaaaagggt	gtaggtagtt	ccaagaacgg	660
tcgtgaatcg	gaaagcaaac	gtcttgctg	aaagtttatg	gtggagaaat	ggctaaggcc	720
ggcaacatat	tggttgctcag	cgtggcaccg	ttcaccaccc	ggtgaaaacg	taggtatcgg	780
taggatcata	ctttgtatgc	actgaagtcg	gcgtggtagt	attactcgca	gaaacgaccg	840
tcatacgttc	gacagaccg	at				862

(2) INFORMATION FOR SEQ ID NO:933

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 759 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...759

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:933

tttgatttga	ttcatgaaaa	ttagtcagat	ttgtcatgca	aatcttatga	acaattcaat	60
agcttggttt	tcttccttag	tttcaaactc	attaggataa	gaaagcatag	taatttagaa	120
tcatgtaggt	cttttggaac	tacaatttct	tttttatatc	tgtactcatt	ctttattatt	180
ttacataaat	tgctttacaa	aaagcaccgc	atattctcac	cgggtgttaa	ctacaaaatt	240
ctcaatgtag	atagcataaa	atctattcat	aatggagttt	ttgtggtaaa	ggtaggaatt	300
acaacttatt	tcttttggtt	tccttttctt	tcttttcaga	gaaatgagta	ccatggtgaa	360
ctaactgtat	gttaaaaagct	agtgaagcct	aaatacatga	gtttgggata	ggaaaagtct	420
tataaaaagt	agtaatcaca	gaatatattg	catgcttgat	gagtttagca	agaattttga	480
tgcggaatg	aacatcattc	gcttcctacc	ggtttcccaa	aggctcgag	acgtcgtaag	540
tctcacttag	tgacagttag	attatgacta	ttttgccggt	gtttcattcg	gaacctttgc	600
taatttcaaa	catgattatt	tgcatttcat	caaagtgatt	tgcaactcga	gttccttctg	660
gctgtgtcgt	acaatcgctt	tgtggacttg	aaagccgcgt	gttctttcaa	actcatgctc	720
tttcttaaac	tctatccctt	tgggaaaaat	gtaccgggc			759

(2) INFORMATION FOR SEQ ID NO:934

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 554 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...554

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:934

cggtgttggtg	gcaagagcac	gtgatgctta	tgctaaagga	gatacaattt	ttttaacagc	60
aagaattaca	cactggggaa	tgaacgtaat	cttggggagt	agtaaaaaag	atgcctggca	120
tgggaagtgt	gaccagacag	gaaatattca	tatcaaggaa	agaaaattgg	aaaggtcttg	180
gttgacgggc	aggatattta	tcctcttctt	ccggtgttgc	catgaatacg	cttcctcttg	240
attttccaat	tcgatagaat	tgctttcgaa	ttatacggat	ggtgatattg	cccagctttc	300
aaggcataag	aacaatttag	cctcaatctg	aagtccaata	aaaagttgct	ttaagcggtt	360
cttttgaagg	cggangcggc	ctgaaagaca	aattatcagc	aaagcatctt	tgattacagt	420

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cttaccaaaa atatctgcca gaccatcatt aacgcccaata atacaggtga ggctgttttt 480
tcgattcaag ttatatgtcg aatatcatag actttgaatc gatccgaagt ggagcttcac 540
gcagacatct ttaa                                     554

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(2) INFORMATION FOR SEQ ID NO:935

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 3501 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc feature
 - (B) LOCATION 1...3501

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:935

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cctaactata ccacaaggag catagcggta ttccgtagaa cgtcagttca cgtaagaaaa 60
caccaatgaa tttgtttttt gattaggggt aaacgcccaa gaacgtgggc attatgcttg 120
aaaaagtagc gaattatttg tatctttacag ttgataatca ataagatacg aacgaacaaa 180
acgctacttt atgaagcaaa tatagttgat gttttttgca tcatagatga tttctccaag 240
cttttgatga agcaatcaag aaaaagaccc tcgaagaggc agacaaaaaa cgcagaatag 300
aaagtttaag atgtcggaca gtgagggtcat gaccatcctg atctgtttca tctgtcaaga 360
taccgagatt tgaaagcttt ttatcttcaa taatcaccta ttcttgtcga tccgagttcc 420
cacatcttgt ctcttataat cctttgtgga gctgcaaagc aggggtgggtt tcaagctgat 480
agcattttctc atatgtgttg tttgggtcaa tgtacaggca tctctttcat cgattccacc 540
cactgaaggc ttgtcataatc aaacgagctc atgggcatag gacaatgagg gatgggtcca 600
aaaaggcaaa agcaccatgg gttggtttta tggattcaac tgcatattgt tatcaacgac 660
aggggtgaaa tcatcaacta tcaaatacac cgggcaattg tgatgacaga gaacctctga 720
aagacggaac attcacaaga atcttttttg caaactcatt gccgatagag gctacatttc 780
ccaaaccttt ttgaccggct ctttgtcgat gacatccaca tgataacca aataaaaaaga 840
acatgaagaa ctccctgatg catctatatg acaaagtttt atgagaaaga gagccctgtt 900
cgaaaacggtc aatgatatgc tcaaaaatgt cgtcagatag agcacacgag acatcgagc 960
gccacaatt ttgtcaccaa ctgatctccg gtatcatcgc ttacaacatc ctgcctaaaa 1020
agcctgaacc aatattgaaa tcatcagaaa ccctaacttt cctattttccg cttagatcaa 1080
ctgacgtctt cttaatagat gaggtggact ctttgtgttc ctttttcgtc ttattgcatg 1140
tttatctatc tctcttttgg cttcaaaaag atacgatacc tatctgtagg tatattttatc 1200
cttgtttttc ttgttttatt gagtgtagta cctatttttg tgatgagagt cggactctcg 1260
tcatgtcgat taaaagaaaa cagaaatgaa taagagtatt aaaggctcaa agacagaaaa 1320
gcattgctca tggcatttgc cggagaatcg caagctcggt cgcgctatac ttctttgcaa 1380
gtgttgccaa gaaagagggt tatgaacaaa ttgccggagt ttcatggaaa ccgctgagca 1440
ggaaaaagag catgccaaaa ggtttttctc ttcttggaag gcggcatgct tgagataacg 1500
gcttcttttc ctgcaggaaa atcggttcca cggctgagaa cttgcgcgcg gcggctgccg 1560
gtgaaaataa gagtggacag atctctatcc ggcttttgcg gaaacagccg aagaagagga 1620
tttaaggaga ttgcagccgt atttcgtcag atagcaaagg tggaaagcag catgaacgtc 1680
gctatctggc tcttttggct catgttgaag atggacggtc ttcgagcgaa cggaagaaat 1740
cgcattggcaa tgtcgcaatt gcggtatgtc attacttcca agaaagctcc gaagctatgt 1800
cccgcttgcg ctctccgcag gcttacttcg agccaatgaa aacgaattac tgaggatcac 1860
atcatataga aacgaagtaa ttatctgatc tcatgttttt gaaggaggca cgctcgggag 1920
agtcgtgcct ctttttttgc ctgttattcc ctgcgaaaag gtgtgcgtca ttttgttttt 1980
tcgaaccaag tataagacc ggctcctgtaa gtgggactct cacggttttt ccggacatac 2040
agccgatttg aaaaagtcaa tccgatgaaa aaaccgtact tttggccgaa attacttaat 2100
aaccaaaaag taacctaaaga tacttatgga attgaaaaga tttttatcac ttggtctctg 2160
cttgtgggat tcattccgat gaagctttct gcccaacagg ctcagcactc cctacagatc 2220
cggctgttcg tgtcggtaag ttggacaacg gattacttat ttcattccgtc acaacgagaa 2280
cccgaagat cgtgcggatt tcttatcgca caaaaggtag gttctattct tgaagaagat 2340
agccagtcgg gttggctcac ttcttggaa acatggcttt caacggtacg aagaacttcc 2400

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cggtaagaac	ttgatcaact	atctcgaaac	gatcgggtgta	cgtttcgggtc	gaacctgaac	2460
gcttctaccg	gattcgacaa	gacggaatat	acgataatga	tgtgccgact	acacgtcagg	2520
gaatcatcga	ctcctgcttg	cttatcctca	tgattggagt	aacaatatta	ccctcgacgg	2580
gcatgagatc	gacgagggcg	cggtgtgata	caggaagagt	ggcgtgctcg	tcgcgatgcc	2640
aaccttgtat	gttcgaggct	atacttgcca	aggctatgcc	gggtaataaa	tatgcgaacg	2700
catgcccata	ggtctgatgg	acgtcgtgct	caacttcaag	catgtgagct	gcgcaactat	2760
tataagaaat	ggtatcgccc	cgacctgcaa	ggttggtgat	cgtgggagat	atcgatgtgg	2820
actatgtgga	gaacaagatc	agaactcctt	caaggacgtt	cctgctcccg	tgaatccagc	2880
agagcgtatc	ttacgcgggt	agaggacaac	gatgagccta	tcgtagccat	tgctaccgat	2940
ctgaggctac	taccacgcag	ctctccatca	gcttcaagag	cgaccccacc	ctcaagaagt	3000
gcgaggatcg	atattcggac	ttgtggaaga	ctatatgaac	aggtgatcac	tacagccgtg	3060
aatgagcgtc	tgtccgagat	tactcacagc	ctaacgctcc	tttcctcagt	gcaggagctt	3120
tcttctctaa	cttcattaca	tcacccagac	taaggacgca	ttcaattttg	ttgcctcggg	3180
tcgtgggggtg	aagcggagaa	agcgatgaac	gcattggtgg	cagagataga	aagctccgtc	3240
agttcgggat	tcaccaagg	cgaatacga	tcgtgcacgg	cncaatgtgc	tcaagcgata	3300
cgagaatcaa	tacaacgaaa	gagacaagcg	tagaacaatg	cttatgcca	tgaatactcc	3360
acctacttca	ccgatggcgg	catatcccgg	gtattgaggt	ggaatatcag	acggtgaatg	3420
cttttgctcc	caggttcctc	tggaagcatt	caatcaggct	attgcccaaa	tgatcgatcg	3480
gtgaagaatg	ctgtcggtac	c				3501

(2) INFORMATION FOR SEQ ID NO:936

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 971 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...971

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:936

ggaggctttt	tcgttgtagt	agggatttat	ctgttgttct	ttctgatcga	tacctttgtc	60
ggcatctgat	cagaagatat	atcctcggac	ggctggccga	gaggtagctg	aaattgtagc	120
ccgccatcaa	agaaaaaaag	aagaggagaa	gggccgacaa	ataagtagat	ctcaaaatga	180
ttgtcgcgca	aaccgaaata	gaaatagata	tgcgagcata	ttacgaactg	aagcgtcgtc	240
gagaccatgc	gataaggaag	cagaacgata	ccagaaggac	atctttcgct	gtttgatcat	300
gtacgcaaca	attatggcga	catgattttc	gaagaagttg	agaccatctg	atctatcctg	360
gcagccttgg	caataagata	cttcgcttcc	tctcggcaag	aagcagatct	cttcatccaa	420
gctaattgact	ccgacaggcc	gccgactctc	catctgatcg	agcagcttac	cgacttcggc	480
cgtectttgc	gatcagtgcc	ttgcttggct	ttgttaagcg	tagcatcggt	cgccgtttcg	540
caggcgtcga	taattttccc	tattctgtct	tttcgggtaa	ggaacattta	tgtcagcggc	600
tgacaaagcg	atataattgt	tgtctgcctg	aaacaatctc	catgaacaca	aaagaatatg	660
tgctggactt	tatcaaccgc	acgaacgtaa	ccttttcctt	accggcaatg	cgggcacagg	720
caaacgcacc	ctgctcgcca	tatagtccaa	cacacattca	aaaactgcat	agtagccgct	780
cccacggaat	agcagcggtg	aatgcgggtg	gggtgacgct	gcattcgctt	ttagcttcc	840
gccgggaaca	ttcattccgt	acgggctatc	tctcgaaagt	gcacgggcgt	aaacttcctt	900
acgccaaactt	ctttttggaa	acagacacgt	agcatgcttc	gaagcgcaaa	ttgcttcgaa	960
acatggagnt	g					971

(2) INFORMATION FOR SEQ ID NO:937

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 421 base pairs
- (B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...421

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:937

atcttctata	cttgatatta	ttgattacct	cctattgtca	gataatcccc	tatagttgag	60
aattattatta	atgaaaatgt	tgaattctat	ggaatgaaat	atttcttgaa	gaaagaagct	120
acatcctaata	gaggaaggca	cctcattagg	acaaggtagc	caagatgtgt	attggaagga	180
gcaagaggaa	tatccttgcc	atacatagc	actcactctg	tgggtgagat	gagaacaatt	240
ctgacaggat	gttttatgtt	cctcagcatg	aaactaaagt	tggtaatcgg	aagtcaatat	300
gaccttcagg	cattttttgc	catttaatta	tctaacagag	gatttatttc	atcagcaaac	360
acttattttg	atacggcatt	ttttattaat	cgagttatga	tggtttcctt	gattatgcat	420
t						421

(2) INFORMATION FOR SEQ ID NO:938

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 3048 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...3048

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:938

ggcgcaagat	ggctgtacgt	ccgcgaagat	cgctcgtctga	cagccggttca	tttcgccata	60
tgcaactttg	attttgtcca	cgaaagggtt	tacctcttca	agtcacgctg	cgatttggtg	120
ccgaaaagct	tcgacatgaa	ttcgttgatc	ccatttatct	attgtatttt	ttgtagctgt	180
tatgatatgt	gcggagaccc	gcgtaagagc	gaaagactcc	tttctcttct	tcccgaatag	240
tatgtcagag	agccacttcg	ggtaatggca	aggcacgagc	ctctgtcgga	ggactatgcg	300
gaggatatac	gccaaagttg	gagctatctc	tgctgaagaa	atattcgctg	cactttttgt	360
ccttttatgc	cgggtaccac	caagataaaa	gggctgctac	agcattatag	cgtatttggt	420
tgtgatccga	attcgaggat	actcctcttc	tccttctatc	catcctcctt	gtaattgcaa	480
acatacatcc	cagattgccc	caatcggaac	gaacgaacaa	aacgattcgc	ttcttcgtta	540
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caataagaca	atcaagatgg	cggagaatag	tccggccgat	actttcagtt	gcttagatat	3000
ttttttgcc	ttgtgaatta	ccaatatgag	agtactttta	ttattttc		3048

(2) INFORMATION FOR SEQ ID NO:939

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3730 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3730

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:939

acaagcatga	ggctcagcaa	ccccggcaac	tggacattaa	ttcactcaat	aatcgacagc	60
tatggactat	atcaatgcaa	taggcggcg	taaggctgtg	tagctcgtgt	ttatctgagc	120
gaaggctccg	gcaagatcgt	gatcaacagc	gcgaaatcga	acagtatttc	ccgtcttcaa	180
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caagacaatc	tgctgtggag	tggtttcaaa	ggtcagagcg	aggctgctcg	cttgctatcg	300
cccgtgcact	ggtcaagatc	aatccggacg	acaaacccgc	tttcgttcag	aaggcttcat	360
cactcgcgat	cctcgctggg	tagaacgtaa	gaaccgggac	gtcccaaagc	tcgcaagaga	420
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cgcgaggcca	accgtcttgg	catccccgta	ttcgcaatgg	tggatacaac	agcgatccct	1140
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tgtagcgtac						3730

(2) INFORMATION FOR SEQ ID NO:940

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3104 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...3104

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:940

cagcctctct	tataaagtgg	atcatacgcc	caaaagcgcg	tatgatccga	gtagttttta	60
gtttttctgaa	agctttttctt	tcaaagcggc	cagctcgcga	ggtctccgag	agtggctttc	120
tctacagcct	gtgcaggatt	ggcagctcgg	cagcagcttc	tttctgagcc	gcttttgctt	180
cagccttacg	ctctgcttgg	cttcacgctg	agccattttc	tgctcatctt	cgaatacacg	240
gctatagata	caatgattcg	cttggcatcc	ttattgaact	caataaacctt	gaaagtaact	300
tctcttcgag	tacagcctgt	gagccatctt	ccttcacccat	gtgttcggag	tggcaaaacc	360
ttccacaccg	taaggcagag	aaacgcacgc	acctgtgcc	tcacttcgat	taccgttcct	420
tcgtggatag	atcctacagt	gataccgtct	cgaatacac	ccaaggattc	tcttccaact	480
gtttgtgacc	aagctgagac	gacggttttc	cttgctgac	tcgattacct	gaacttcgaa	540
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aaatatggat	aaggccatct	acgcctctct	cgatctcacg	aatacacccg	aattggtgaa	660
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attggtcata	tctctcaaaa	gcacggcaaa	gttacaataa	cttttcgtta	cctcttcatt	1920
tgatcaacc	tgcagattcc	ccccaccggt	gcaacattaa	caagcgacct	caggattgac	1980
tccaagagt	caaccgaat	caggaaacgc	actatttgaa	attacaatgt	tgcaatatcg	2040
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acctcctaag	cctcatTTTT	tcagtacacg	tcacgtcagt	cgtcagtata	aaaaaggacg	2160
cgtgcctttc	ctgaaaaggc	gcgcgagaat	tttcccggtt	tggcggagat	gtttttcgtt	2220
ctggcgcggg	aattatTTTat	ttctcgcgcc	aaaaaaaaaa	gtttacgcac	cacgttttca	2280
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tagacctcca	ttgccgaatg	tgcgaaagcag	cttttgagat	cgtccttgcc	gatgggcaact	2580
atttccattt	ccttccttcg	aagaccaatt	gcccccatat	ttgcttgacg	attatttggt	2640
cctctgcacc	tccgtatagc	gtggaatgat	agctatgctc	catcctacag	caggagaatg	2700
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tatggctgtg	aggatattct	gtatcatatc	tatgggctat	acggttcaga	agaaaagtat	3060
tcctatccgg	tagattagga	atgataacgc	ggggtatctc	taga		3104

(2) INFORMATION FOR SEQ ID NO:941

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 616 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...616

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:941

cgccaaaccg	gtcataaaga	agaggaagaa	agtgatccag	aagctttgtc	acctttctcc	60
ttgcgcacatca	ggtggaaaga	aataccgac	agcccaaaag	caacggaagc	atgtagtaca	120
cattgtgtcc	gcgattcttg	gtcataagtc	cggcatgtca	tccgtaggac	cgataagaat	180
cttgtcaatg	aagggaatacc	cgtcacggca	ttgccacgca	atagtcctcc	gtcgccttgc	240
aggtcttctg	acggccggaa	aaattccaaa	ggaaataacg	ccagtacata	taatgacctg	300
ataattgaag	aagaatttca	ggttctctcc	gaatgtaggc	atatggatc	cgtttcggat	360
cgccccatcc	agatattata	gctttgcgga	tgccatcggt	agtggaatag	acacgtggga	420
aaagcatcat	ggaaccatct	cataatcgta	ttcgcgttgt	gtatagagcg	tttcgtaacg	480
atccttatct	taggatttac	cttggcgcaa	ggccctgtta	cttctgccat	ccttcaacca	540
caggttgga	tgcaaaggaa	ggcccgtaga	tcacgggtac	ttcgatattt	cgcgagcaag	600
gtagctacaa	gccgaa					616

(2) INFORMATION FOR SEQ ID NO:942

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 4090 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...4090

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:942

tcttgctccc	tgacgatgc	aggacgcgat	tgtcagctga	ttctgctcca	tcaatgcgct	60
aactatcagc	tgtttgcaac	tattttatag	gactttcatg	aagtcttttg	ccgcagagct	120
gattcttaag	tgtttttcag	attacttagg	tttgacagaga	gatcgcatga	agctctcctt	180
tcttcgtcaa	atcaatcttg	tgtctgtctt	gatcgatatg	aggggggtgga	aggggttattg	240
tgcaaagtct	cggctctgtaa	aatcaattct	atcaactcga	cacccatcaa	acgaatgcaa	300
tgaaatatgc	acttcatccc	ctgtatgaat	caggttttat	tcacttcttt	attgaaaagc	360
aagaatcaaa	attcgatcgc	cgtctctact	tgtcattcaa	gttcttcttt	ctacggcaat	420
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aaagacattg						4090

(2) INFORMATION FOR SEQ ID NO:943

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 907 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...907

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:943

```
cctctggcgt accttcccga tcatcaggga atacgtaccc cacagtacgc cagctctgta      60
tgggaagccc gccttgccct cgaagagatg ggggcaccgc tcatacattc agtccggcct      120
atagcccgga ggagtttccg gagatacgcg ttatagcagt cacgtcacat tcaactctct      180
cagccagtac tacctgtttc gcccatgggtg aagaacgtag gcgtatcgct cggactcaga      240
atcaaccgga atactcggcc gtggagaccg cgctctacaa tccttggtgca ccggttcgcg      300
attcgggtgta tcggctttccg aattggggcga caccctgccg gaggtatcga gggctctgcac      360
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gaccgcgcg actatgacgt ggagcacctt gtgcaggtgc tgaacgactt ctcccgccgc      540
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caagagcacg gtggtggaca tcgtagagca tcaaggcttg ccactgctat cgtggatgtg      660
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cgcatcagga gccggaccgg gectgcccac atacaggata ggcggtatgca gctgtctgag      780
cggcacttca tcggtgactg gagtttcgat cggccgttgc aggtggggcga tgactgatat      840
tcgaagacat gctccactac acgacggtga agaacgacca tgtcaacggt gcacgccatc      900
cgacat                                           907
```

(2) INFORMATION FOR SEQ ID NO:944

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1076 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1076

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:944

```
gggcgtcatg gaatatatga tagcctcgat gctcttgaag gcacgtcgcg tatgtcgata      60
tccttgatgg cctttcccac tcccgggatc atggatgcag ctctttgagg ttacccatct      120
ttttgatctg atgtatctgg gcaaggagtc attgaagtcg aactgattct tggctatttt      180
ctcctccagt ttgcgacttc ccgttcgctg tattgtctct gagcacgctc cacaagcgat      240
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ttccatcttc tcccccgta cgcagaaact gatgggcttg tttcgaccga acggatcgag      360
agggcgggc cgcgcggggt atctccatcg agttggtaag gacaacaccg tcgaaatcca      420
agcgtgtatt gaactccttg gtgtattcac ggcgtcctga ccggtcatcg agtccaccac      480
gaaaaggact cgttcgggct gatggcagcc ttgatggcct ctatctcgcg catcatttct      540
cgtcgatggc caaacgacc gcggtgtcga tgatgacaac gtcgttcctt tggctcttgc      600
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ggtaccccg gctgctcgcc gaggatata gctgctggat agccgcagg cgatacacgt      720
cgcaggcaac gagcaaggtc gtttgccctg cttggacttg agcatattgg ccagtttgc      780
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```

ggagaggtgg tcttaccoga accttgcaat ccggacatca ggattactgc cggctgcctt      840
tgagattaat atccacagaa tgtccgcca tcagagcagc cattcgtcac gaacgatctt      900
caccatcagt tcgcccggac ggacggaggt cgcacgtttt ggccgatggc tttttccttc      960
accaagtccg taaactgctt gcaacgacat agttcacgtc ggcatccaaa agggcacgac      1020
gtacatcttg agagtttcgg ctacattgat ctcggttaatt ctcacctcac ctttga      1076

```

(2) INFORMATION FOR SEQ ID NO:945

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1710 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1710

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:945

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cgccaacgga cattcaatag aaatgaaagg agtagatctc ttttaacttta gaatgggttt      60
ataaagaaaag tctggctctt ctctgagcga attgaagaga agaccgtttt tggacggcat      120
tggcacaagg ttgttaatga aagagaacct tttgagattg ccattatacg ctgaaaaaag      180
agaatatgaa gtaggtgtgg caataaatcc attagaaaaa gcagacagta gaaattactt      240
ttcttctgcc tgcttttctt taattatata gcttgcccaa ggtatagcaa acaacaaagg      300
agaagatgaa gagttctttc ccgaaagtct gtcgattatc cactccgcaa agtctttgcc      360
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tatcgttttg tttgcacgct caccttgcca gagaaggctc cgaacaggtc ggctatctcc      540
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agttcctctt ttcatagttg tttagtatcc attgttcttc gtctttccat cagcctgtcc      660
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gccgtggtaa tgacgtgttc tttccgtcat

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(2) INFORMATION FOR SEQ ID NO:946

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1104 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1104
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:946

gtagctcgaa	tcaaagctgc	aactgcacat	ctaaaagaat	tgaagatcgc	attatgggct	60
gtatcgtaaa	tggccgggtg	aaatggccga	tgccgacttg	gctacgtagg	gccgggtccg	120
ggacgaatcg	atctgtataa	ccagaagtat	gtgttcgctg	tggtattcct	caggagcagg	180
ccgtacaaca	gcttatgaac	tcatcaaaga	aaacggagac	tggaagagagc	gttagttttt	240
cggaagacta	tttttctcag	ttgatcactt	tcctctcaga	gacccaagca	atgaaatcaa	300
aattatcaat	cgctcgcac	atcccttgcc	gacatatgcg	actcggcatc	tgccgggtatg	360
gatctgcgtg	catccatcga	agagcctatc	acttggtgcc	actcgaacgt	cgtctcattc	420
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ggctctatcg	accaccaagg	aactatggca	atatattaag	gtgctgggta	tgaacgccgg	1080
gacgagctga	cgatgctgca	ggct				1104

(2) INFORMATION FOR SEQ ID NO:947

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 3088 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...3088
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:947

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tgcgtctggc	ggctgtttcc	aagttccatc	ccgtggaaaa	ctcatggagg	cttatgaggc	120
cggtaaaaga	gttttcgccg	agagtcggta	caggaaactga	tgagcaaagt	ggaagcgaatg	180
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caggcgtcga	aagtagggcg	taccgtgccg	gttttatttg	aaggcatatc	gcacgcggag	360
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cggctccgat	accggagtca	aattgccggg	ctgatgggga	tggtacatt	tacggacgat	480

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gctattgaaa	gagggaaatgg	gttttgtccg	gaatgggaag	agccggagcc	atgctctcgt	720
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tggaacgat	cttcgtgcct	tttacgtact	tatccgtatt	cactccgcat	cgaacatagg	2460
cgtgtcgtct	ttagagggag	cgcacataac	tacatacttg	caccggcagc	aaggtgtgct	2520
tcggattttt	cttctgtgag	gaaaagacgg	tggattccac	tacgtattcc	actccgactt	2580
gatcccattt	cagatcgcag	ggttctttct	agctgtaact	cgaatggctt	tcccgtttac	2640
tatcagtgc	catctttgac	ttcgactgtc	ccattgaaac	gaccgtgtac	actgtgtact	2700
tgagcatgta	cgccatata	tccacatcga	tcagggtcgt	gatgctacaa	tttcaatgtc	2760
gcttctgttt	tgtgtttgtg	ctgcgcggaa	tacaagcggc	cgatacggcc	aaagccgtta	2820
atacctaatt	tcgtcataac	tagtgcttat	attttaatgt	taaccattat	tgttttgtcc	2880
ggaatacttt	gttttcccc	gaaaaggatc	cgcagagatt	cttcccgcata	gacagcggtc	2940
aatgaccttg	ctgcaaaagt	aaggaagata	atccacaaac	ggctgatttc	ttgcacaaaa	3000
acatttttct	cgcaccacaa	agctactcca	ttctcggaat	tcgtaagcaa	gccgtatcgt	3060
ccgtcgatcg	ttcgctattc	cttgatgg				3088

(2) INFORMATION FOR SEQ ID NO:948

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 740 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...740

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:948

ggtacccgcc	ttgccagag	ttccggtatg	gatgtcgata	cgcccgtaga	gtcgaactgt	60
tctgccacgc	cacgtccggt	agcaccacc	acgccggcga	gtggcactcg	tccaccatca	120
ccatggcatc	gtatttctct	gccaaatgca	tatcttatcc	atgggagcca	cattgccatc	180
catagagaat	acgccaccgt	tacgatgatg	cgatagcggt	gggcctgtgc	ttctttcagg	240
acgcgtcgag	gtcttccatg	ttggcattct	cgtagcgata	acgtttggct	ttgcgagtcg	300
aacgccgtcg	atgatggagg	catggttcag	agcatcgctg	atgtggcgctc	ttcttctcca	360
aagagcgggt	cgaatacacc	gccgttggca	tcaagcatgc	cgcatagagg	atagtatctt	420
cgggtgtgaa	gtattcggca	aggctttctc	caattctttg	tggatgtctt	gcgttccgca	480
aatgaagcgt	cggagctcat	cccgaatcca	cgctcatcca	tcgcatcctt	ggcagcctga	540
tcagccgagg	gtgatcggac	agaccgagat	agttgttggc	acaaaagtca	atacctcttg	600
gccttcgttt	acgcggatgt	cagcacgctg	gggggtgtga	tgatccgttc	tttcttgtac	660
agcccggtt	cttcgatact	cttgagtcgg	cagccaagta	gtctttcatt	cctttgtaca	720
tagcactgga	gtttttagggt					740

(2) INFORMATION FOR SEQ ID NO:949

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1632 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1632

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:949

gaaaccaatt	cggaatcat	caacggttca	gactggtatg	taattcgca	agtcgtcagg	60
acaatgcaaa	ttatttccat	cgtctgcgag	aaattacctt	gaaatcagca	acacgaagtt	120
ggtgccggcc	tctcaacttc	caaagtatgg	aatctgaaca	aagaatctct	gcttgctctg	180
atcgaagaat	ccttatcggc	atccatggta	cagtgaacttc	cgctgcgaac	ggacagcctc	240
tcaaagccag	atcttgatag	aaaaccatga	caagcgcaac	tccgatgttt	actcgatgct	300
accacaggct	actacgtacg	tcctatcaaa	gccggcactt	ataggtgaaa	tacaaagccg	360
agggttatcc	tgaggcaact	cgtaccatta	cgtcaaggac	aaagaaaccg	tcacatgga	420
cattgcattg	ggcaactcgg	tcctctgcct	gtacccgatt	tcacagcttc	tcctatgacc	480
atctcagtag	cgaaagcgtc	caattccaag	atcaaacgac	aaataacccc	acgaattgga	540
gtggacgttc	gaaggcggac	agcctgccat	gagtacagag	cagaatccct	cgtatcctat	600
agtcatcccg	gtcagtagca	cgttacgctc	aaagtgtgaa	tgcaagtggg	tccaacacga	660
ttacgaaaaga	aaaattcatc	actgtcatgc	cgttatgcct	gtagctgaat	tcgtcggtag	720
cccgaacggaa	atagagaggg	ccagacggta	tctttccaaa	accaatccac	caatgccacc	780
aactcgtatg	gatattcgat	ggcggcactc	ccgctaccag	tgaagacgaa	aaccgactgt	840
gctttacagc	aaagccggcc	aatacgaatg	cacgctcaag	gcatcagtag	ttccggtgaa	900
acggtgaaga	cgaaagaaaa	atacatcact	gcaagaaagc	tccggtccct	gctccggtag	960
ccgacttcga	aggaacacct	gaaaagtaaa	gaaaggcgag	acagttactt	tcaaagactt	1020
gtctacgaaa	atccgacttc	atggcttttg	gtgttcgaag	gcggtctctc	tgccaccaca	1080
cggagcaaaa	cccgggtggtc	acctacaatg	aaacaggcaa	gtacgattcc	agctgactgc	1140
caccaacgag	ggcgggaagca	atgtgaagaa	agcagagact	acattgaggt	tatcctcgat	1200
gacagtgtcg	aggacatagt	ggcacgacgg	gtatcgctat	tcgtccgcaa	aacggaacga	1260
agcagatcct	cataaagcca	acgctgctat	caaagcgatc	gttctctatg	acatcaatgg	1320
acggtcgtac	tcaaaactac	tccgaatcag	ctccgctcga	ccgtagatct	ttcatcctgc	1380
ccgaaggaat	ctacaccatc	aatatcaaaa	cggaaaaatc	cctcgcacgg	aaaagatcca	1440
tatcgggttaa	tccgagatct	gctacacaag	aaagggatgt	ccggtggggc	atcccttttc	1500
tttttgtcat	agcaagctct	ggagcattat	tcggtcgggtg	tgggataaag	cagatacttc	1560
ttccgcaatt	gtggtacttg	tcgagatccg	attgccaaaga	ggctcggatc	tgctctttgt	1620
cggcctttt	tc					1632

(2) INFORMATION FOR SEQ ID NO:950

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2294 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2294

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:950

caccagttga	tcatattgcc	gtctttgtcg	aagttgcggc	cttgatcgtg	aatccatgcg	60
tcattctcgtg	tccgatcact	acgccgatac	cgccataatg	acagcatcgt	ctgcatccat	120
ggtgaagaaa	ggcggttgga	ggatggcgca	ggaaaacaaa	tttcgtttgt	ggtcggattg	180
tagtaggcat	tgacatctga	ggattcatca	gccaacgctc	gcgatctaca	gtcttgccga	240
ggtcaccata	ttgtcgtcat	gcatccatct	gctggcgcg	ttgatatacg	catatagctg	300
tctcccttga	tttccatctt	ggaatagtct	ttccacttgt	cggataaccg	atcttgatga	360
tgaaggaatt	gagtttttcc	tgagctttca	tctcgtggag	tcgcccaccc	atgtaagcat	420
gttgatacgc	tctccgagg	cgtttgacga	ttcttgacga	gtttgagcat	gcgctctttt	480
gcttcgggtg	gaagtattgc	tttacataaa	cttcgcccag	tgcttcgccc	agaaagctgt	540
taccatacct	acggaacggt	tccagcgagg	atgcatttcg	gtggttccct	cagcgtctta	600
ccgaaaaagt	cgaaacgagc	ttgctcgaag	tcacgcgcag	atagcttgct	gcaccgctga	660
tcgtgcgggc	gaggagatag	tccctctttc	gttcagatcg	gctttggcaa	accaagagtc	720
gaacttcttg	aagaatcgag	ttgctccaca	tcccactctt	cgagggtggt	gagctgacga	780
tcgggaggta	agtagtccaa	tcaaagcctt	ggtacttatt	cgtaaactcc	ttcctgccat	840
cttattgtag	ttacgatggg	tatcgcgtag	ttcttctttg	cttagcagat	ttgtgccagt	900
tcgggtttcca	tcttcattgc	gttcttgcca	aacgggtagc	tgcttcacgc	tcgtagccgg	960
ccagcttagc	aattttgttc	gataagctac	atacgctcgc	cgtatttgct	gagacttggc	1020
atcctgctta	gatagtagtc	tcgattgtca	agagccaagc	cggctctggg	gatatggaga	1080
tggtcatctc	gctattcttg	gcgtcggcat	aaacgtacga	tccgaagatg	tgcttccacc	1140
catattgtcc	ttagcagcgg	catacttcac	catagcgctc	tgtccgcaat	ggcttcgatc	1200
ttctgaagat	cttctctcag	aggggtgctc	cgtctttatt	cgttttgatg	ctatccatag	1260
cttgacgata	gagctagcta	tacgatactc	attagtgcgc	acttcattgc	gtcctgctgc	1320
aagttgtcca	caatcaggtg	tacacgctcg	aggggtgctg	cgtgcaggat	gtgaatgagc	1380
cgtagcgact	ataagcaggt	ttgagaggat	tggttttcat	caattgccgt	tgacgtagcg	1440
ataaaaagtcg	tccctgcgggc	gtacggatgt	tccatggcac	tgagggtcgat	ggccgggtacc	1500
ggttcgcgct	tccgtgcaga	tcgttagtct	gacccttatt	gccattgcag	ccggtcagca	1560
tcaatgcgcg	attactgccc	gcgcaaggca	aagaaacttg	attgtcttgt	tcattgttgt	1620
gatatttggtc	attaaaacaa	tttcgttggg	tattctccgg	cttcgcgtag	tcgcgtagtt	1680
tggttacgac	accggggcga	tcgtccgaat	aagtgcaccg	aacctatcgg	ctgtcgtatc	1740
cagcacttcc	accgaagctc	gaccctgcga	ataagatcgt	tcacaacgaa	gggaatgaag	1800
aactcgcctc	tcgtcctctc	ccatgagcat	tcaggaagtt	gatgaacagt	tcttccgaat	1860
agcgaagtag	tcaggagtga	atccccacat	attcatcgaa	acgggtgcat	ctctgccagc	1920
gtacatatct	ttccggtctc	atctcggaat	gagatagtag	gtctgtgcgc	tcgatgccgg	1980
tacgtccac	cacaccggtg	agcaaatggt	ttcatctacc	tggcatactc	cacgcgaaac	2040
gccaccgctt	tcgtcaggtg	attaccacaa	cggtagccga	ccatgcagta	ttcgccttgc	2100
ttaccctcaa	agtcattgag	ttacgagcca	gaacttcaaa	accattgcgt	ccatagaatc	2160
atccgcattg	atgacggcaa	aagggttcgcg	aatcgcattc	cgtccatcag	aacggcggtg	2220
ttcgttcccc	aaggtttctc	gcgccttccc	ggacggagaa	tccttccggc	aagcgatcca	2280
attcctgaaa	aacc					2294

(2) INFORMATION FOR SEQ ID NO:951

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1079 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1079

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:951

aactccttta	tgaaaaagaa	agactatcgg	cagagtgtgg	aggcctatag	cattcgctcc	60
gaatcaaccc	gaccgatgaa	gagactcgct	acaatctgct	ttggccatga	agttgcttca	120
gaaacagcaa	cagcaaggag	gaggagaaat	caggatcaga	ataaggagaa	taatcacgac	180
aaaaaacaac	cgaaacaat	ccgaataaca	ataaccaggg	cggacagcag	cagccccaac	240
cgtccaacag	gacaatacac	aaaaagatca	acagccacga	cagaatgaaa	tgagcgtgaa	300
agtgctgaaa	agatattgaa	agcctacgaa	caggacgagg	agaaaacgcg	gaaaaagttg	360
agcagatgcg	taagcagcgc	atgaagcagc	aaaaggtaat	tccaccaagc	agtggtagtc	420
cgcttctttg	cgattagctg	ttcaatcttg	ttatctccgc	acagctccag	aaagtaatgt	480
gtacttttagc	tcctcttcat	aaaagcaatg	actcaacgga	agaacgcttc	ggataatttt	540
aatgccggtg	ttaagaaaca	aaacagatct	caataatcac	tgactgtatg	tacgatgaca	600
aaggtgcgat	atattcttac	aaccttttct	ctatgcccg	ttggtgtacc	catgcgcagg	660
tttctttcac	tgtacaagct	cctgcggtgt	ggcgatggga	gaacaattca	gagtgagttt	720
tacctcaaaa	gatgcaatgg	aacggaattc	aaagctcctg	ccatgagcga	ctttgaagtc	780
cttttggccc	ggccactgct	acaagctcat	tcagttccat	ttccaacggc	aagccacttt	840
gtctcgaagt	atcacttata	catataccct	gatgcccaaa	tcgtcggcac	ctttcagatc	900
ggtcgggect	ccatccgtgc	caacgaccga	gttataagac	caagcaggta	tccatcaagg	960
tgcttccggc	cgataaaaaa	catcgaaaaa	tactaagtct	tcctcttctt	cctcacgagt	1020
cgatgccgtg	tttgttgtcc	gaaccatcat	caataagacc	aatgtacgag	caggaagca	1079

(2) INFORMATION FOR SEQ ID NO:952

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1920 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1920

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:952

ttcgttacag	tcgcacagag	cttgagggtt	cggctcgttt	ccgttccatg	caggtgcttt	60
cggtgctttg	ggcggtgact	tttctgctat	aggacagatc	cggccggcct	gggcattttt	120
cgctcttcgg	aagtctcggc	taccattatt	tctcttccat	atccaatcag	gcagcttggc	180
agggatcaag	tgagacttca	ataaaaaaaa	attgcttttc	acgggtatcg	gttatgtcgg	240
atcatgggca	aagccaatga	agatgtaagc	gtcaatttcg	ggctgggggc	gaaggagtgc	300

tggactacga	gcgatcggtt	cggatagccg	gaggtgagca	gaattttccg	tggcggacta	360
tgtggcagct	cagactcccc	gcaaagccaa	tcgtctcatt	tcaattataa	tggattggag	420
agcagttggc	ttacggactt	aggtataatg	ccggttggat	agctcagctt	cccggcgggt	480
atggttttga	tccatattca	agtataaaca	gaatggtaga	taccagatct	tcgggccttc	540
tcacaggctt	tcgacctgaa	agagacgggg	cacgtatgga	actatgactt	ggcttgggca	600
ttaacatcca	agacacatgg	tatttgggtg	cgagcatact	tatagcgatc	tgcaatttga	660
cacgaacact	ttctatcagg	agaattttct	ttcaacaatg	gtgctatcaa	tgactacctg	720
aaactcgaaa	atacttctct	acatcaggaa	gcggactgaa	tatcggtatc	ggagccatct	780
atcgccggct	gatgctgttc	ggatagggtt	gtcctactat	acgcctacat	ggctctggatg	840
aagagttact	atagggtcta	tggctcttct	tattattccc	aagggtagac	tccaatgggtc	900
agccgcttcc	ggagaatctc	tacttcatga	gagccagact	cccgaatcgt	ataatactta	960
tcaaattgagt	agtcggggac	atgttgggtt	agtttggcag	tcgttggctgg	caaaatcggc	1020
cttctcagtt	ggattatgaa	ttggaatctt	acggccagat	caaattaaag	gatgagaagg	1080
tacggcctac	gttgataata	agttcatttc	agaggatttt	ggttcaccca	caccatccgt	1140
ttggggaggag	aactgcgtcc	catatcgctg	ctgagttgct	tgccgggtat	tcacacactt	1200
ccaatcccat	taaaaatgaa	aaattaaagc	tttcgacggc	tcggcacagg	tgaccgtctt	1260
ccctatgggg	gctagcctca	ttacgaactt	ccgggcaatt	cctataccgt	gacaggaggc	1320
ttggttaccg	tttcacgcgt	aatctttcgg	gcgatttggc	tgtgatctat	cgaatgagaa	1380
gagttactac	tatacttttg	gccgaatggt	atcggaacgac	cgaatccggc	caatgtgttg	1440
gaagtggaa	ctcctgcacc	ggcaaaaactc	ctcgctctaa	cttcagatta	gcaatgacaa	1500
tgctgtatcg	cttctgaaat	agcttgacgt	gtatttcggt	tctgaaaaac	gtggtctgag	1560
aagattttat	tttggttcgg	gagttgaaaa	aatctcgcgc	cggaaacgaaa	agattctgctg	1620
ccattttttg	gagatttttg	tttgagattt	tgatctatag	aaccacactc	aatcataaca	1680
gcctgcaatt	tgacctatag	accaatagta	tcctaattgt	ttttaggggg	atgctgagttc	1740
ttagtcccg	agtggaaata	ctccggacta	tcattttttg	attttagggg	gatccccctt	1800
gcctattcaa	agactgattt	tcgctctccg	gtggaggagt	aaaaggctca	ttcagccatt	1860
gctcagatca	attttgggtg	aagtgttgat	ccgcagggaa	gagaccaa	tgacagacac	

(2) INFORMATION FOR SEQ ID NO:953

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4511 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...4511

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:953

ccatcgcgca	gaaagatgcc	gagctggttc	gcctgcagtc	ggaactgaag	tcgtcgaaca	60
aaaaaagcag	tccgagctaa	gcctcgctat	cgcaggaaag	agaaagaaat	cagcgatctg	120
aaatctgcca	tcagagacaa	agacagtcct	tggagatcgc	cgttctcaaa	gagcaacaga	180
aagcacaaga	ggatataaat	ccaaagaagc	agagatagcc	ctactgaaag	cttcggcaga	240
gctggcaagc	aaaatgcaac	cattcaggag	aatgcgctca	aagaccggta	tgaaccgctc	300
tgaaactgaa	gcaggaagag	gtggactatt	ataaagatct	gaagctcgca	tgtccacgaa	360
aatgatcggg	gaaaccttag	agattcattg	ctcacccaat	tcaatcagat	gctccgcccc	420
atgatgcccc	atgcctattt	caaaaagata	atgatgcctc	gggaggtagc	aaaggggact	480
ttatcttttcg	gatttcggcg	aagatgggac	tgaatacgt	tccatcatgt	tcgagatgag	540
aacgaagccg	atgagaccgc	cacgaagcat	aagaacgaag	attttctcag	aaactggata	600
ccgatcgccg	ggccaaaggt	tgcaatttgc	ccgtactgtc	tctctgctgg	agccggacaa	660
cgagttgtac	aacggcggta	ttgtggtatg	tcctacagat	acgataagat	gtatgtgatt	720
cgtccgcagt	ttttcttccg	atgataaccc	tcctggtgca	gacgtccaaa	aagggtctgg	780
agtaagacag	cagcttgcca	tcgcgcagaa	acaatccatc	gatgtttcga	attcgagagt	840
cagctcgaag	attttcggga	aagattccgt	aaaaactatc	gcttgccagc	gaacgattca	900

aaacggctat	cgacgagata	gacaagtcca	tcagcacttg	aataaaatca	aagaagcctt	960
ggtcggcagc	gagtacaacc	ccgccttgcg	aacgacaagg	ctgaagccct	caccatcaag	1020
aaactgacag	aggcaatccc	acgatgaaag	caaagttcga	agaagcccg	ctcggcgaga	1080
atgacgcact	ccgggatata	atgccaaacc	tacatctcca	tgtgtatata	acaattttgc	1140
gcaaagccat	ctgaggtgta	ctaataaaat	gtcagtaaag	aatagatatt	gacagaagcg	1200
aaacggatgc	cggcgaagcg	acagaaaaaa	agtaatgccg	gatggaaagc	tgccttcgta	1260
tcgaagatac	ggcgtgctgt	cagagaaaca	gatccgacgg	gtaaaactacc	ctctccagat	1320
agaggcatga	gccggagccg	aagagccggc	acggctgcga	tcctgcgatt	cgtgatgtcc	1380
cgaaagtctg	tgatggatag	cttgcccgtc	cccacatgga	aagcgtgccg	actatggcac	1440
gtaccatatt	gcgaggaat	ctgtccgcgg	gatggaaaag	acccattgac	cggctctgtgc	1500
aagtggcatc	catcgggctc	cgttatacgg	cagttgttcg	ttttgacgtc	ggtatgcagt	1560
ttgctgaact	cgtgaagtcg	atatatcgcg	gaagaagagc	cgccgcttca	ttcatgctcc	1620
gaagtcgagc	ttacgatagg	tcttcagcat	caagccttcc	ataaaagatc	tttctgctcg	1680
gtcagatagt	agtggtaagt	tcgggagatg	gcatcaagcg	cgcgtgggca	tcggctttga	1740
caggagccat	tcggtatatg	acgagtcgcg	tggggagagt	ttattgagcc	tttctgtcag	1800
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atctctatta	g					4511

(2) INFORMATION FOR SEQ ID NO:954

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2041 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...2041

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:954

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ggatcgggtct atttcgatgt ggaaaaatac aatcaagacc atcgctacga gtattgagcg      60
gtcgggaacat agaagagatg atcaataata cccgcagatc gatgggcagg acgaaaagcg      120
aaacggcgta gactttgctc tctggaagct gctcagcccg agcatatcat gcgttggccg      180
agtccttggg gtatggattc ccagggtggc actgcgaatg tacggccatg gggcgcaagt      240
atctcgtgaa gagttcgata tacatgggtg aggaatggac ctcgattttc cccacacgaa      300
tgtgagatag cacaggccgt tgcctcacag gggcaccccta tcggcgctat tggatgcaca      360
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cgaagagttc ttctccggag ccatccgagt cttaacaaag cttattcacc catgaccata      480
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agggggtggt gtgaaaggca ttgcctatat cggggccctc gaagtgcgca ggaagaaaag     1140
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cgctgggagt aaagactacg gattttgcca tcagcgatgc caaaaaaag ctttgctgga     1980
atccggccgc tcatacactc agtcatattg gagtggtaca ataacagcga agaaaaagtc     2040
a
2041

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(2) INFORMATION FOR SEQ ID NO:955

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 3119 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...3119

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:955

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ctgcttatac ttccaaatac atcagccggtt tcgtctgaaa cgataccgat tttcgacatc      60
gggaacgacc attactacta cgacgacttc cgcaatgaga aatcatgcga cggatcacac      120
agaagtgtcta tctgccggcc aatctgcttt gaaggaaatc attgccgaac atcccagatt      180
tcgagtagca ttttcttttc cggtagctgt ttggaacagc tggagtccta ttcgccggag      240
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tcttctccga caacattgcc accaagtggc agaaatgggt tttcaaggga tgctcacgga      480
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cggagtgttc cctcttgctc cgcaatccga ggctgagcga tgccatcatg ccatgttcac      600
ccgctacgat tggaaacgaat atcccctgac ggcagacaga tgatccgttg gatcgaagag      660
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gaaggtgaac acattttcct tttcggtttg aaatccagta cgggcaatat cgttctctg     3119

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(2) INFORMATION FOR SEQ ID NO:956

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 777 base pairs

(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...777

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:956

atattactat	cgctcctcgca	gagaaagatt	cttgtttttt	cttccatctc	ttctcctcta	60
aaaaatagtt	gtttttatta	ttaatgggct	actaaaggct	tcccgtttct	cggactgggtg	120
cgctgctcct	ttattcacct	ccaaatgccc	aattctatta	taaccgctct	ctataagaac	180
gaatattttag	gtttaatggt	ttgtacaaag	agaaataaga	caataatata	ctaccctata	240
gatgatctat	ctcttttaaag	accagattca	gaacattttc	tttcggatag	acttataagg	300
tttttataac	agactgcaaa	ataaatgttt	tcttgtcaat	aatttcctct	tggggcgag	360
atttacagct	gctcactccg	atcttaagt	gacggtttga	tagatttagg	atgaaaagcc	420
ttgtggggct	ctaaggttat	ctatccgaaa	tgatatcttcg	gtttcggata	agaggacgat	480
tatcaaacca	aaaaccggaa	aaagtcgaac	cggatcttcg	aaaaacacgc	gcgtaaaaat	540
ttcgtttttg	cgcgtaaatt	tttcagttcc	cgaaccaaaa	caaaaaaatt	acgaaccacg	600
tttttgggaa	ccataaacac	gagaaaaaac	ggtcgcaacg	gaatcaatgc	ttttctcgct	660
accgttcctc	tttccgttcg	gtaggtcctc	ttatctatat	atggtgcgca	ttgcagggct	720
taagcatttc	tatctatctt	tgtacgaatc	tctgaaaaca	aagcgaagaa	aaagcta	777

(2) INFORMATION FOR SEQ ID NO:957

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 738 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...738

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:957

ggcaaaaaat	tcaaaatctt	cctgcccggc	aggtaacgac	cagccaagac	gatagcaagg	60
ctgcgcaata	catcccgttt	ctcccgggtc	gatttcgtcc	gatggaagca	cgaaggggcaa	120
agagtgtctt	catcttggtc	actcgctatt	gtgacggccc	acgaatccct	ccaacggcct	180
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atccttgccg	catttcacgg	ttattgatga	tcagacgctc	accctccgta	ttgttctcag	300
gtcgaacagc	tgatcgaatg	ccttatttcg	gttatccatc	ttacgatcca	agcagataca	360
tttacggttt	gtacgtcgga	agcatgttta	tccttcgcaa	tacctccacc	agcttgtaca	420
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gtattcgctt	gtcttgttca	tggcaatacc	ttttttgaag	tagccagcac	cttgtccagc	660

tcattccaaag taggaataat ctcatTTTTac tgagagtgcg agcatctttg acctcatcga
tcataaaatt cagaactc

720
738

(2) INFORMATION FOR SEQ ID NO:958

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 939 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...939

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:958

ccggtctgga	agctcatctc	catgccggac	aattaacggc	tctgctcggg	tgaatggtgc	60
cggcaagagt	acgctcatgc	gtacgatggc	aggattcaga	agcccttata	gggacaaata	120
catctactgg	ggcggtcatt	ggacagcata	aagagataga	aatagccaaa	cgtataggcg	180
tagtgctgac	cgataatgcc	ggattgccgg	gatgacggca	ggcgaactcg	tcgcattggg	240
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aagccgtaga	acgtgtggga	atcgctccgc	tgatcaatcg	cgactaacta	cgctcagcga	360
tggagagaga	caaaaagtag	tcacgcgaaa	agcctggcac	agcagacacc	gatcatcttc	420
ctcgacgaac	cgacggcttt	ctcgattatc	ccagcaagat	ggaactgttg	cacctcttgc	480
acagcctggc	catgataccg	gcaggactat	cttcctctcc	actcatgata	tggatgccat	540
ttacccatgg	ccgatcgcgt	ttggctgctg	gacaaggagc	gttctttcgt	gagggctcgc	600
cggcatcttt	ggcctctgcg	cttgaagatt	atttcgggat	atccatcctt	ctcccacatt	660
agagccggtg	tagcatgctc	gccgggttata	atccgatagc	tttgctcccc	caatcaaagc	720
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tataccataa	gagctgtgtc	tgtaaaaacg	gaaaaggagt	gtccaaatgc	agtgaaccct	900
gaaagttcga	tacaaaacat	tcagggttca	ctcaaaacc			939

(2) INFORMATION FOR SEQ ID NO:959

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3557 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3557

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:959

agagatatattt	cggcagtagc	gaatcgcccc	gggagataca	tattgctcgt	tcgcactact	60
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gctgactccc	gaagttcttc	tgtctcgaag	caagacggtc	aaaactgtaa	tacgggtgtct	180
tttctctcac	caccgggtca	gcaggtgaaa	cacataagga	gagtgaacat	ggtgtcctcc	240
acgatcagca	gatagcgaac	aaagcgcaat	gcatgcaagt	gcactctatc	gctgcagata	300
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gtgacagcca	atctgaagaa	ctacaatcga	cgcctcgaaa	ccaacgaaag	gccatccgcc	3540
tgttgacccc	caatgct					3557

(2) INFORMATION FOR SEQ ID NO:960

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1122 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1122

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:960

cgatatggat	aaactgcatg	tggctcaaag	gcgtgggtgat	gcgtgcgcat	tcaacggcaa	60
gataccgaga	aacccgttcg	ctcagttcca	tgtcagccga	acacgaagga	gcgtgcgttc	120
ctcacggagg	acgagttgaa	gacactgtgt	cgcagtgatt	caaggacagc	cattccgcct	180
tcgtgcgtag	tttgttgctt	tcgcctcctt	caccgccctt	tccttcgtgg	acttgaagga	240
actcacatcg	acgagattgt	ggaggtgaac	ggtgagaagt	ggatacttgc	gaaaggcaca	300
agacacaggt	gccgtaccaa	gtgaaactgc	tcgatgtacc	cttcaaatca	tcgacagata	360
ccgaccgttc	caaaaggaca	actccatatt	cgggacatca	actactggac	ggtctgcaag	420
aagctcaaaa	aagtcatcag	cagtgcggaa	taacaaaaga	catctccttc	cattgcgcaa	480
ggcacggcct	gcgacattgg	cactcagtaa	gggcatgccg	attgagagcg	tgagccgtga	540
ctcggacaca	cgaacatcgt	aaccacgcaa	ctctatgcga	agataacccc	gagaaactcg	600
acaccgacct	ctccatgctc	ggcagcaagc	tcaacgctca	tttggctata	tcaaaatggc	660
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atgggaacat	caccgaccca	atgaagaaat	atggatgagc	gagtatgaga	ttgccgacct	780
gctggcgctat	tcggacatac	catccgcacg	cagggtcaaga	agatatacac	ggaggactgc	840
tgactcctg	cacggcagag	aggaacatca	gggtggcgga	ggtcgcctggc	ttgatgtgta	900
cagccttgaa	atggtcatag	cccttgcggt	cgcatacagg	cgcaaagggc	aaaaaggctt	960
cgaaagcatg	tcatacgcaat	ctgaccgaac	gacacggagg	ctttatcatg	ttcctcccag	1020
cagaagcagt	tgttcctgct	aaaacagcct	gacaggggtt	atagagggtt	gtccccatga	1080
cacaagggga	taaacctttt	ttcttttttg	gtggctggga	ga		1122

(2) INFORMATION FOR SEQ ID NO:961

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 588 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...588

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:961

gttttatgga	ttcaagctac	atattgttat	caacgacagg	ggtgaaattt	caactatcaa	60
atcacaccgg	gcaattgtga	tgacagagaa	cctctgaaga	cggaacattc	accaagaatc	120
tttttggcaa	actcattgcc	gatagagcta	catttcccaa	aacctttttg	accggctcct	180
tgtcgatgac	atccactgat	aaccaaaaatc	aaaaagaaca	tgaagaactc	cctgatgcat	240
ctatagacaa	agtttttattg	agaaagagag	ccttgatcga	aacgggtcaat	gataactcaa	300
aaatctctgc	cggatagagc	acacgagaca	tcgcagtgnc	aacattttgt	caccaacctg	360
atctccggta	tcatcgctta	caacatcctg	ccaaaaagcc	tgaactcaat	attgaaatca	420

tcagaaaccc taacttttctt attccgctta gatcgaactg acgttatctt atatgaatgc	480
aggtttcagc gaaaggggaag ataggaggct ttagcctttg tacacggtaa ttgttgattg	540
gaaaattttt ctttcggagg gttttgtccg aaacctcgta tatttgtc	588

(2) INFORMATION FOR SEQ ID NO:962

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1855 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1855
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:962

ggccgaaaaa	ggcttttttcg	agagccgaaa	taaaagaggc	acccgcctgt	tcgcctacaa	60
atcaagcggg	tgccttatga	aatttttaggt	ggtgtcgagt	cttattccac	tctactcgtc	120
atagcatagt	aagccccctt	gtccgaatcc	ttgtggcata	tcggatcatt	atcaggcgta	180
aagcaggaga	gttggggcgt	gggctttctt	ttaagtgtaa	attaaaagca	aaagccgaag	240
tctttatcgt	ccaatcatta	tcagtacaat	atatcttcta	tttacttggt	tccacaagaa	300
gaaacgcttg	ctttggccta	tgcattctct	ggctctatgg	aaggatcctt	atcagacctt	360
gcaaaggtag	caaaaatttt	taggacacct	ttttgttcaa	attagttggt	aatgtggact	420
atttaaattg	attgagcttt	caagcttagc	ttattttatt	gacgtataca	aatctctcta	480
tgtgtaatta	acaaacgtaa	tcatacaaaa	agtaacttga	taagcataag	gtttgtgctt	540
acaacaagta	tattatcttt	tttcttagtt	gacggtcagt	tgccaaatag	actacctttg	600
tgtcgggaaa	cggcggcaat	aaaacagatg	ccgacaaata	tcgatttcat	gatggcggtc	660
actatctatc	atccggcgaga	attgcccagc	gacaggctga	aaaatcccca	aataagacta	720
taatcaaata	ctacgtcgcg	aaagcaaaca	atggcgcaat	atcagttgga	gcaaatttgc	780
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gaggattcat	ccatggagac	ttgtttgtcg	gagagcagtt	ccaatacaac	aatgcttata	1020
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ccgtaaacat	tcccatcatt	gtcgatatgg	tctgtccgaa	acgactgcca	cggtatcttt	1800
ctatccgcag	cgagattcaa	gatcggtcnc	atgggcaaa	tgatgccggg	ctgga	1855

(2) INFORMATION FOR SEQ ID NO:963

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1899 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc feature
(B) LOCATION 1...1899
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:963

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gagagtactg tataatccga accgaggaaa cgtcctatcg ttttggcttt gccggagact      60
ctacgatgac taagtttttc atccttctgg ttgatggggt ttgattttgc gcgcaaaggt      120
aatgtattcg taccgcaata caaatgatga gagatacttg cacattccgg ttccaagtgc      180
aattgctcgg cggatcttac acttaaggag acctttgaaa aaagagaagg tctctatctc      240
tatatgtcgt ccttaaaaaa acctctttaa gggacgacta tatagaaaac aaatcattgg      300
ctttttctta cgtcgaactg acgttgtaag cagattcctc acgatttggt tccggaattg      360
gccggaatgc ggttcgagtt ttctgagatt cagagcgaga atttttccgt tgtggcgcgt      420
aaaaattttt cttcccacgc caaacgaaaa aattcccag ccacgttttt ccaaacgcta      480
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gtcgaacat  ttgacctatt ccgagcgtct tcacattgtg gaagaatact cggcagcccc      600
ggagcaagta tgccatcaag aagaagtaca acatcgccag aggcctatta gagaccattg      660
cacggcattt tgcgatatga ccattgtctt ttcttacgtc gaactgacgt ctatatacaa      720
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gagacagtgc ttcgaaaaca aagcggaaac ccttggggat gcgagtgttc gaaggcgggg      1020
gcgatagatt atatcccatt tgccgataga aggtttctgc ttccctgttc gccacattgc      1080
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ggttgaagct ctttcagggg cgggatggaa agcgaaagtg cagcgtcccg atgaagctct      1860
acataacggt cggggtagcg gctgatgagt tcgtccaaa      1899

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(2) INFORMATION FOR SEQ ID NO:964

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 2469 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...2469

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:964

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ggcaaggctc ctttgatcgg acggagcgat ccatccaacg aaagctcgcc ataatcatat      60
agcgcggcag agagtctgct ccgataatgc catctgcacc atgagtgcga tggcaagggg      120
aaggtcgtag gcagtacctt cttttttatg tctgcccggac tgagattgat cgtaatgctc      180
ttttggggaa aggtgaattc agacagtcgt atgtggagcg aatcctatcc agactctcac      240
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acggtaacgg taagggcgtc tatgctgtgc agagcagcgg caaggctctt actaacataa      360
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tcttctttta tctctccata ctttcaatga tttagcgtag tggagtcagg cttgttcgtg      660
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aacgtgtatc tcttctgtgc gaaagagcct tccccttcaa ttgcagagc cagaaccgaa      1260
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caagatgatg gtgataccgc tttctttttc ccttgacgca aggacggctt cgtgtactga      1620
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tgtcggggaa ggattccaag tagggtgcgg ttataaacac atatagccgg ccagcacgat      1740
caggtctatc cctaattctt tcaaagggca atgggcttcg atccttcgag catctcttgg      1800
gtagtaaacy aatagccggt attttcagcc gatgggcacg tgccataact cctgcacg      1860
aggattgctg aggatcacag ccaagcttgc cgaacctctt tgggcaaaga atgacacaga      1920
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gacctcgtag ttgacaaatt gaatgtagaa gcttctgaag taacggtgaa gccagtttct      2220
caaatgacct tcggagccag actctcttga tacattgagt tgatgatgaa tttcgaaaag      2280
gaattcaaca tgtctatccc tgagaccaag cacaggagat caagactgtc ggcgacgcta      2340
tcgactatat cgaaaaaacc tgaagtaaaa tactccgatg gaactgaaaa gagtagtagt      2400
acagggttag gagccattac tccgcttggc aactctgtct ccgaaacgtg gaaagcttag      2460
tggcaggca

```

(2) INFORMATION FOR SEQ ID NO:965

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1556 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1556

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:965

gccttgactg	ccggcaaaat	cctgattcga	agcgatctaa	ggaaaagaag	aaccctccca	60
tcatggcaaa	aagcatccag	gcatagggtgc	ctaataagaag	aaagggttgc	gcagggtcag	120
aacatcctgt	atgggtttgga	gcgtatggta	gagggatagc	ttggcgaaat	ctgggtacata	180
ggcatccccc	cgaagaactg	ttggtccaat	aggagtgttc	tcctgtctgt	gcctcccaat	240
cgcgtcgtcc	tgcgccgtac	cgctggctcc	cgctacgtcg	ccctggaaca	gtaccgcccg	300
tcgaatgagg	cgggatataga	ataggccaaa	gcgagggcta	tgaaggaggt	acgaccgcag	360
cataaggtag	gatttttgcgc	caatcaggct	tttcttatcg	gtgggtggta	cggttccggc	420
agcagctgtc	ggcttttctg	ttctttcatg	atgtcgtttg	tttttcggtt	acaaagttaa	480
aaaaccatgt	attggctcgg	cctacgacca	actgcttctc	tgaacgttga	gcagagaaga	540
tcctccgcac	attgttattg	tatgcaagag	gtcagaaaaa	gagcagttaa	accttgggac	600
aagctctctc	cctatttctat	atacatatct	gaggacaagc	gaaaccattg	aggaaagagg	660
cggcatccat	ttgtttcttg	cgggctttg	gagcgagagt	atacgtagga	cccctttgcg	720
tgatcatcac	tcgagttttt	cttgtcccat	atgatggagc	cgaatcggcc	tctgtgtcgc	780
ggtttcgttc	tatcacttgg	gtacgggtata	ttttcagcac	gatggactcc	atcttggacg	840
atgaagcttg	gtccaagctg	taggagcagg	cgatatgctg	cgatgaaatt	gtgtacctct	900
tcagccggtt	tgtcccaatc	gatacggcag	tgtctttgaa	aatcttcgga	gccggtcgag	960
catcaacata	gcccgggaagt	gtccttgagg	tatggagacg	ggttctcctt	cgagaaacaa	1020
gtccactgtt	gcaccaatac	ggatgcaccg	agagttagcca	tacgttcgta	caattcgcga	1080
aagtctcttc	atgtcctata	ggcaacttct	cttgcagcag	tacttcaccg	tatctatctc	1140
atgccggagg	cgggaaggtg	taactcccg	ttccgttcgc	catggcgtat	cgcgtgggtg	1200
ataggggctg	ctcctcgata	catggcagca	gagagccatg	cagattgatt	gttcccatgg	1260
ggggcatttg	ccatcggagc	gaggaagcat	acggaaagcc	actacgattt	gcaagtgcgg	1320
ctgtaagtcc	gtagtccatc	gagaaaagat	tcctcgttca	gattgtccgg	ctgagaatag	1380
gcagacccaa	ttcctgtgcg	tatagtttga	ccatactggg	attaccttat	gtcctcgacc	1440
cataggcttg	tcgggcatag	tgaccacagc	tttacttggt	atccgttttc	gaccaaagct	1500
cggagtgcgg	gaacagcaaa	tcggccgttc	ccataaaaaa	caatcgtagt	tcttct	1556

(2) INFORMATION FOR SEQ ID NO:966

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1812 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1812

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:966

tggtctctcc	gatttcgaaa	ctttccaaac	cgatgatagc	gcatatatcc	ctgcatccac	60
atgggtcggct	ttggctcgtc	ccaagccttc	gaaggatatca	gctccttgat	tcgctgcttc	120
tgcatcgtac	catcacgctt	gcagagctaa	tatcctgccc	ttcgccggagt	gtgccgcgat	180
gtactcggcc	gacggcatac	gccccacata	ggaagtatat	tcaagcgatg	taatgagcat	240
ctgcggggcac	cctccggctg	ttcggggagcg	gggatgtgtc	ggatgatggc	atcggtagcg	300
gagcaatgtc	ctgtgtggga	tgttttagtg	cggtagctcat	ccaccctgct	tggccgagcc	360
gtatatgggt	gggaaatcga	gctgaccttc	cgagcatcga	ggctgtacat	gaggtcgaac	420
accatatacct	gcacttcgct	cgacggcagt	tgagtttgtc	tactttgttg	atgacgacga	480
tgggttttag	cccatctcga	tggctttttg	cagcacaac	cgagtctgcg	gcacggcccc	540
tcgaaggcat	ccaccagcag	gaggcatcca	tcggccatat	tgagcacggc	tccacttcac	600
cgccgaagtc	ggcgtgtccc	ggggtatcga	tgatattatt	ttacaaccct	tatagcgaat	660
actgacgttt	ttggaaagaa	tggtgaaccg	cgttcgcgtt	ccaagtcgtt	gctatcgagg	720
aaagtatcca	cttcgcagcc	ttgtcatccc	tgaaaagctt	gccggctaag	agcatcttgt	780

ccacagcgtg	gttttaccgt	ggtctacgtg	ggcaatgatg	gcaatgttcc	tgagtcctgc	840
atthttcttct	tctgagtaat	tggggacaaa	ggtagtaaaa	cggctgtttt	tcggaatgga	900
tatccaagtg	tccggtattct	gcacattcca	ttgcaagagc	gttgcatthg	caggcaaaaa	960
aagacgccga	cgaagtgtct	tcatcggtct	caataggatt	ccaagatatt	tcttgataga	1020
gtttttcagt	gacgatattcc	gtcttacagg	atgatgttct	tagatgtctg	tgtattatag	1080
caaacaaaac	agtgcagaga	atatggcctt	tcgtctttta	gtcgataaaa	attctctgcc	1140
ctgtgtctga	ctcgtggcaa	aaagcatccg	tcctgcatat	cataaatata	gaccgatttg	1200
atcagthttt	ctgccttgat	gccgaggtcg	ttccttggat	gtagacgttt	atatcgttcg	1260
acgaaggtag	aactthttggc	tatctgtcgt	atggcatgat	ttggcaaccg	tgctatagaa	1320
gatattgggat	acttcagctg	ataatcctgc	acaatgtctc	cctctaccct	gagcgcgttt	1380
ggaggggata	ggagthttccg	gctatcatta	cttctccgtt	tcactactga	taaagttgcc	1440
ttcgtcatct	ttgattgcga	tctcgaagcc	ctgtcgtctt	ttacgcaaac	aatagtcgct	1500
gtcacttccg	gatacgtaat	tgcggcatag	ggatctcggg	aaccactccc	tcgaaagttc	1560
gattggggga	gtgatgcgtg	tgacatcag	ttcatagtag	gcacgcgaatt	catggaacca	1620
ccttctgtaa	ttagcatatt	gcccacttg	gcgtatggac	agaactcctt	aaccccccat	1680
aataagctgt	aggataataa	taacctthttc	cctgaaactg	aatggtgctc	taaaggctat	1740
cggthgtcaa	aggcattcag	ttgtcatcac	agaccatccc	cagccgagtg	ataatcgacc	1800
gggactgtgt	cg					1812

(2) INFORMATION FOR SEQ ID NO:967

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1804 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1804

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:967

gagtgtgcct	ccatcggtcat	ctcttttcatt	tggctgatga	ttgccttagc	tcagtagctc	60
gagccgatct	cttcatattt	agattacgct	tgaccagact	tgggtgacgg	cgagtaccgc	120
tgcatctcgc	cgtgcttgcc	aatccttggc	aaggcgaagg	aggcttgagc	tccaaacgta	180
gcagagcgga	aagcctgtac	atctgtgggg	cagagagcat	agagcactta	tcctctaggg	240
catcaagcga	acgaacatcg	cagggcactt	ggggctgcgg	acgacgaaga	gagctgcccc	300
tctgtctcag	atacagccaa	ctctagccct	tcgctctgcc	gaggatatag	tcgtatcgth	360
ctggatgctg	cgccttgtag	gttttgagct	cgagaggtag	tgctctaggg	cagactccgc	420
gccctcgatc	tgggtthttca	gtcgtgggtg	acaacctctt	cttcttcaact	gaagatttga	480
ctatcctcac	gaaaagtgtg	tggaagact	gtagcttggg	atatgcttht	ttgacgagat	540
gatctcggca	tctccctctg	cactcggcat	gaagttatag	acatagacca	gggagcttgg	600
gagccgatgc	ggttgactcg	cccgatgcgt	tgcatcagcg	cgtagcattc	catggagtat	660
cgtagttgag	tatgtctgtg	gcacgggtag	gthgataccc	tcggcaagca	cttctgtcgt	720
gatgatgatc	tggtatcatc	tcgctgtctc	ctctttagtg	tggtatcgaa	atttgcctcg	780
atatttcttc	gcgctctcgg	cggthcttct	ctgtgatcga	gagcaccgag	aggggtcatc	840
gacactctcg	atggcccgtc	caatggctcg	cacagtgtct	atgcctcggg	gaagataacg	900
agthttctgct	ctggattacg	ctccagactg	acagactagg	tagcagctgt	cgcttaaaat	960
cgtctagtht	gggatcgctg	agtagatgct	ccactgctca	tctagctggg	cgatgagggc	1020
tagatcctgc	ggagtagatc	aatgtattct	ggagcaaatg	cctcacgtcg	atactctcat	1080
ttcgccctth	ctcattcgat	ccagaggagt	tgagcttggg	gatctthttgc	gtagatcctc	1140
ggcacactct	tcgaaggaga	acaatttctc	cgtacttccc	aatgcttacg	gggattgagc	1200
tctgcattca	catctatctg	tgggcgatga	atatggtatc	gtgctcccac	atatccacca	1260
tattthtggg	gtaagcttga	gattthttgag	cgagaccttg	aaggcggaga	agctactctc	1320
gatcgtthta	ccaggccaat	ctgcataatg	cgtgctagct	gatgggagaa	tcctcggcat	1380
ccatgttgcg	ccccgagtag	agcttacgcg	tgctctcgth	ttcaggtact	caatagctcg	1440
atatcggtag	tagcatagag	aggtagagct	tcgaactgaa	aattctctth	cggcgcaatg	1500

cagtccatcg	tacgagcgag	agtttggcaa	ggctcttgct	catacgatac	tcaaagctat	1560
gagggccata	atctcgggaa	aggtaagttt	ggtctcaggg	tagtacttac	ggatgtcgtt	1620
cgggtgcgtc	tgacgagtat	atcctgtagg	acgcagtctc	ttacgcacta	gacaagtcac	1680
tgagtagttt	cctactctgc	tgtatttgct	ctgccttggg	ccttcgtcgt	agcgagagta	1740
tatgacagat	tgatattcac	gagcatatcg	gcaaaaaaac	tctccagatt	gccaccattg	1800
gcct						1804

(2) INFORMATION FOR SEQ ID NO:968

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1429 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1429

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:968

atttgagtat	taaaaacagc	ataatatctc	tcccatggca	taccaatcca	gaataccgat	60
gagcatgtaa	catttgcaga	cgcactcctt	tcaaagcgta	tcgcaaagca	caaaacgact	120
tcctcaatca	ggttgagagg	cttatcgttg	gcgtccgac	aggacgctga	tcaacaagaa	180
atacacgaag	cgacaaatgc	catcggcgcc	ccggcttatg	acgtgattct	cttattcaag	240
atgttctttt	ggagacatgg	tacaacctca	gtgattgtgc	tttgaggagg	cgcacaatga	300
ttcaatcacc	ttttcccgat	tcttgggact	gaagatggaa	gagtatctcc	cgaccacagc	360
accatcagtc	gatttcgttc	ggcactgaca	gattggggct	catggacaaa	ctattggcgc	420
agtttaacaa	acaactttcc	cccatcacat	ttcggtcagg	gaaggggtgc	ttgtcgatgc	480
aagccttggt	agacgccaca	taaacccaac	ggaaccatta	cgattgaagt	cgcagacgaa	540
gagaagacaa	tcggagcgag	gcggaaaaag	aggcagagga	ggattatcaa	aacagggtgt	600
ccgccggcgt	aaagggacgg	atgaagaagc	ccgttggtgt	acaaacaaaa	gcgttatcac	660
tacggataca	aaaagcattg	tctgacaatg	ttcaaggcat	tgttcaaaag	gtgataacga	720
ctgcagcgaa	ccgcatgaca	cgaaggagtt	tattccgcta	ttgcagggtg	caaacatacc	780
tcaagcacag	ccgtcttggc	ggacaaagga	tatgcttgcg	gggaaaatcg	ttctacctgc	840
aaacccatca	ccttcaagac	ggcatcatgc	acaaggcaca	accaacaggg	cattgaccga	900
ggaagagaag	caaggaaaca	aagcaatcag	tcgatacgga	gcaccatcga	acgcaccttt	960
ggcagtattc	gccgggtggt	catggcggac	gatgtcgata	ccggggactt	gccaaagacc	1020
atactcaaac	attcttgaaa	gcacgcgctt	taattttatac	agaaccccg	ggataatttg	1080
tcctcatctc	taggataagg	cataaccccc	cttgaggagc	tcgtgcagta	gctccgcaag	1140
gggggattta	caactacttt	cactccttac	tgccaccttt	tcactcgctc	cttttttgcc	1200
aagaactcct	cttccctcca	tctcctat	tgcaaaggtc	tcttctatat	aaatcgaaag	1260
ccgaaaaggc	cactcgagag	gctataaaac	agaggcacc	acatgattcg	gctcgaatca	1320
tgtggtgcct	tattcttttg	aagggactgt	aagagacctt	attgctgctt	atgatcatgg	1380
ggattatact	attcgtccgt	atgccacatg	gcatacatat	atatcggcc		1429

(2) INFORMATION FOR SEQ ID NO:969

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 805 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...805

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:969

ggatcccttag	tcctggagcg	gattagcccc	ctgactatca	atttttcgaa	tgtgggtcatc	60
cccctatgtg	ctaaaagagc	tgatttttcgg	gctctggcga	ggcgtaaacg	gctcattaag	120
ccattgcatc	agatccatct	tggtaaagt	ttgattctta	gcgaagagac	aagattagac	180
aagcaccacc	gatattggcg	atactcttga	gatagaccat	caaaagcatt	gtaataagag	240
cggtcataatt	tgcacctcta	cggcattgcg	cgttgttcca	agaaaggcct	tcactctgagg	300
cgttgcttca	aattccgaaa	gaaaatctcg	ataagccatc	ttgacgatac	agcaaggcta	360
tactacttgc	tgcaagggtg	tctatgttgg	tcataactca	acgacatcgc	catgtttctc	420
gtttagagagg	gcaatatgcc	taatggctta	gtgtacttgc	cttgctctg	aacgcctgtg	480
agccgtactc	ctgatctact	agtatttgc	gatgcccattg	ttctgggagt	tccaactctg	540
aataacctca	tattttaagg	accttgggtg	gcgtactaca	aaactcactg	ggtgctgtcc	600
caactattga	gcaaggcggt	atcagcatag	ccacggtagc	cacgacgata	cttctgctg	660
ggataggaat	agaattggcc	atcttgcata	atgtccttta	ccatcactaa	tatgcacata	720
ttcaggcaac	agagtttgaa	gtctaagagt	gtatgaagct	taacagctcc	cttcgtatgt	780
gtgttttagc	ccaatcgtat	agggc				805

(2) INFORMATION FOR SEQ ID NO:970

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1024 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1024

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:970

atgagcatga	ttttcaaaaa	tgacaatcat	caggagtcgt	ttgtctttgc	ttgtccacta	60
cttcgaaatt	gttatcgggt	gaaggcaaat	ggcgactcaa	ctgcccttgc	aggctattgc	120
cacgcatcgc	ggcggggaat	acaactggcg	cagcaggata	ccgtgcatac	atgggtcaat	180
ggagctgtcg	gacttagctt	tcgtatcgcc	ctcgtaccga	caaaccctatg	cagatttggg	240
gatctcttat	ggtgtggcag	ccttgtcaag	cggaggatac	ttcccttacg	aaaggggtgg	300
ggcggttatc	tttctctcgg	aatggacttg	gagcacttcg	ctttcgtacc	gactattggt	360
acggcaggca	ttacgtttct	ccctttgctg	cactttcgcc	aattccctga	cgtatgacaa	420
acagcctctt	acgaacgggt	gggcgattat	attcgtctct	atgccgacta	ttcgtggcgg	480
atggcacgaa	tgtttcggtt	gcggtctgtt	ctcgggtatg	gttcagacct	tcggatcggt	540
tgcgatgagc	cacgccttgg	aactgacgat	gcgtatcgat	cccaaattcc	aatagctttt	600
ctgaaaggca	atcattgata	tttcgatat	ttgcgaggga	ttcctcagtg	atcatttagt	660
ccggtgaagg	tgggtgaatg	ccaaaaaag	aggactgcc	aagagctcca	agctcctttg	720
acagtccttt	tcgttatatt	ggaatggatg	tcgcttacag	ctatgcgatg	tccatttctt	780
tcatatctct	gccagtgtat	ccttggcatc	tccgagtttg	aggaatacac	ccgtgctcgt	840
gtgtagagcg	gattgtccac	acctgcataa	ccgggtttca	ggcgaagttg	caaagtatta	900
cttcggagca	tcgtccacgt	tcagcacggg	ctaccgtata	taggcgtacc	ctcagcattg	960
cgagcagcag	ggttcattac	tcgttggcac	cgattactac	cacggcatcc	gtctgagcga	1020

aatc

(2) INFORMATION FOR SEQ ID NO:971

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 588 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...588

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:971

caaatatagt	tgatgttttt	tgcacatag	atgatttctc	caagcttttg	atgaagcaat	60
caagaaaaag	accctcgaag	aggcagacaa	aaaacgcaga	atagaaagtt	taagatgtcg	120
gacagtgagg	tcatgaccat	cctgatctgt	ttcatctgtc	aagataccga	gatttgaaag	180
ctttttatct	tcaataatca	cctattcttg	tcgatccgag	ttcccacatc	ttgtctctta	240
taatcctttg	tggagctgca	aagcagggta	ggtttcaagc	tgatagcatt	tctcatatgt	300
gttggtttggg	tcaatgtact	ggcatctctt	tcatcgattc	cacccattga	aggcttgta	360
tatcaaacga	gctcatgggc	ataggacgat	gagggatggg	ctcaaaaagg	caaaagcacc	420
atggggttgg	tttatggatt	caactacata	tgagaccttt	gcaaaataag	gaggtggagg	480
gaagaggagt	cttggcataa	aaggagcgag	tgaaaggggt	ggcagtaagg	agtgaagtg	540
ttgtaaatcc	ccccttgagg	agctgcttgc	acgagctcct	caagggggg		588

(2) INFORMATION FOR SEQ ID NO:972

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1956 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1956

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:972

tcaccggaag	tggagagagc	tatgcagtgc	gcgacccctg	gggcatccgc	ctgcattcta	60
ttatatagac	gatgagatcg	tggtcacggc	ctcggagctc	ccgttatcca	aactgtgatg	120
aatctgtcgg	cagaggccgt	tcgggagtga	tgcccggaga	agctatcttt	gtcaatagca	180
agggagaacc	tcgtatgagc	gtatcttgga	gactaagaat	tatcaggcct	gttcgttcga	240
gcgtactatt	tctctcgtgg	cagtgatcag	gatatatatc	gtgagagaaa	ggcttggggg	300
atctgctttc	ggaacgcac	ctccgagcga	tcgattacga	cattcccata	ctgncctttc	360
attcatcccc	aatacagccg	aagtggcata	tttggtatgt	tggagggcat	agatcattat	420

ttggatgaat	gcaagattcg	aagattcgcg	agaacccgaa	tatgagtga	gccaaagtgc	480
gtgagattct	ggacgaaagg	ttcgggtcgg	gaaggtggcg	atcaaagaca	tcaagctcaa	540
acttttatta	cggaaggcaa	tagccgcaac	gatttggcgg	ctcatgtcat	gatattacct	600
atggcacggt	acaagccggc	gtagacaatt	tggtcgtatc	gatgacagta	tctgccgtgg	660
gactactctg	cggcagagca	tcacgtatc	atggataggt	tgcaacctaa	gaagatcgct	720
attgtttcca	gctctcgag	attcgttatt	cggactacta	tggtatcgat	atgcgtaaga	780
tgcggaattt	gtcgttttcc	gctccgctgt	ggcacttctt	caggagcgcg	gtaggagcaa	840
gtgttgacg	atgcctatgc	aaaagcttta	gagcttcgga	agttagttcc	ggacaggagg	900
tcgaaaatgt	cgtaaagact	atctataagc	cttcacggcc	gaggagattt	cagccaagat	960
ggtagagcta	ttgaagccgg	aggcgtgcgt	gccaaagtgg	agatcgata	tcaaagtttg	1020
gaaggcttga	tcaggcgata	ccgaatcatc	cgggagactg	gtatttctcc	ggcgattacc	1080
gacacccgga	ggcgtcatt	tggtaaatga	agcttttatt	agctacagga	agaggactat	1140
ggcaaataat	tatttccaga	atcgaaagag	tattaaaacg	tatgagagag	caaagaaaag	1200
cgacattgat	attggacgat	ggtagcgttt	cgaaggctat	tctttcgggt	gcgaacgtgc	1260
tgtggccgga	gaggcgtttt	caatacggct	atgaccggct	atgtggagag	tctgacggat	1320
ccggttatcg	cggacaaatc	atggttatga	cctatccttt	ggtgggtaat	taggcgttcc	1380
gatgaaagca	gctgagccaa	acggcgtatc	ttgctttatg	gaagcgacag	aatacacatg	1440
gaaggaatcg	ttgtgtccga	ctattcccat	cttatagtca	ttggaatgct	gtcgaaagcc	1500
ttggcgattg	gctcaaacgg	agcagggtatt	cggctctgacg	gggatcgaca	cgagggcatt	1560
ggccaagccc	tccgcgaaca	cggttcgatg	aaaggaaaaga	taattctcga	aggaggcaag	1620
acattggctt	cgcgatcct	tacacagtca	atcaggtagc	ggaggctctt	gtcgtgaagt	1680
aatcgtctac	ggcactggaa	gcaaaaaggt	ggtaccgtcg	attgtggagt	gaaggacaac	1740
attattcgtc	cgcttctccg	tgaaatataa	cgctctaccg	tgtaccatgg	gattacgact	1800
ttcatcgaa	agctacgacg	gtctcttcat	cagcaacggc	ccgggcgacc	ccaatatgtg	1860
cacgtcacag	tggaacatat	tctgcgggct	gtggccggcg	acaaacctat	cgcggtattt	1920
gcatgggcaa	tcagcttttg	gcgaaagctg	ccgggg			1956

(2) INFORMATION FOR SEQ ID NO:973

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2086 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2086

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:973

tgccgtagat	ttccggttct	cgcttgccca	gagacgccag	attggggcct	tgataatgtg	60
tataagcttc	ataacgattg	tttatctttg	ggaggcaggc	cataaaaaaa	cggcttacgg	120
cgcagactct	cgttccggtg	tgtgcatggt	tggcacacaa	cctctacaaa	ggtatagata	180
tttgacaatg	atagaaatag	cctttccaag	cgttacaagt	cctacctcag	tttggagctt	240
cacctacgcc	caacagtgtg	gatgcttact	taaaggattt	gagcaagtta	gacttttatct	300
cacggctgaa	aacatctctt	ttcgagaggt	ttcgtatgaa	aatttcaaca	tttcgtagcc	360
gaattgtatg	acctcggcat	cagtgcgcgc	tcatagcgcg	tatcatcagc	ggtgtcaaga	420
gtttcttccg	cttcctcgtt	tggaagagta	tatcgaagcg	gacccctaccg	agttgctcga	480
aggccctcgc	tccgtgtcca	tctgectacg	gtattgacca	tcgaagaagt	tgatcgacta	540
tcggatcgat	cgatccggca	gctcagggag	cccaacgcaa	tccgcgccatc	tggaataact	600
ctatagctgt	ggtctgcgtg	tcagcgaact	gacttcttga	aattcagcaa	tctcttcttc	660
aacgaatcat	ttttgcgtat	cgatggaaaag	ggcgcaaaaca	cgctcttgta	cccatgagcg	720
agactgctat	caccggctga	agcggtatct	gtccgatccc	gaacgcccga	cccctgttct	780
tggaagagag	agtatgtgtt	tctgagcaat	cgcggaagag	ccatctcccg	catatggttt	840
tctgcatgat	caagaagctg	gcagaagaag	ccggtataac	gagagtatca	gccccatac	900
attccgtcac	agctttgcca	cccattctgt	cagggaggag	ctaattctgca	ggccattcag	960
ctcatgcttg	gccatgagaa	attgccacga	cggagatcta	tacccatata	gacagagaaa	1020

cactccggct	gaaatcgaga	cctaccatcc	gcgcaatcaa	tcctatcgtc	gatccgggtcc	1080
gaagctgacc	aataaaaaat	agctcccctc	gccacagaga	gatggcaaat	ggctatatcg	1140
aattttcgtc	tttcatggag	agcatatcga	ggacttttcc	cagtcggtat	cgacttcgca	1200
ttctatctcc	agcggtaatg	tttcgaaggg	gccaacacct	cattgagccg	ttcgccgaat	1260
actcgttcag	tacggcataa	tagaccaat	actttgttcc	gcctccggta	tagttgcctg	1320
tcagatggcc	aacttgctct	tttccatagc	cttacggatg	agcagctcga	tccttcgata	1380
cgtttgctg	ccgattctgt	aggcagacct	tgttcgtcgg	ctcgtagggc	cagcgtattt	1440
cgattcggat	tttcagcttg	ccactcagtc	gaattcgtca	agctccaagc	gtccattgac	1500
gaatactatg	ttgcccttcc	atcctcactg	atggaagtaa	accatcggtc	tgtagtttcc	1560
attgtctcg	gtttttattct	ttcgtttatc	gtatagccag	atttggatgg	aattgaggaa	1620
ttttgccata	ccacatagct	tgcaggtgcg	atagaagcta	tcggatcaaa	taggtaagcg	1680
acatccaaat	ggcaagcgac	gtgtttttct	gtcccaagcc	tgaccggccg	taatgctctc	1740
tttcaaata	cgtttgctta	gccantgccc	aacccgaatt	gcaaggcaac	aagctaagca	1800
gaccacccaa	cgcaacagca	gtcccaaagc	gatgctgtcg	gagccttggt	ccatcacata	1860
gctgtcgttt	tgcccatgat	gatagccagc	gaggttaaccc	atagccaaaa	accatttggg	1920
gaatgcgag	aagccgggca	tggtgccgag	ggctcgtgaa	cgaatgatcc	aagcagccaa	1980
tagaggaacc	accaccagag	gcaagacacc	caaagaatat	ggatgacgga	agacccaaac	2040
ggcatatcgg	catgtgccta	ctcagcgaag	aaaacagcaa	aggccc		2086

(2) INFORMATION FOR SEQ ID NO:974

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2189 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2189

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:974

gtcaactttt	ttcagtacac	gtcaaaaacc	gaaaagttta	cgcgccacgt	tttcggtact	60
gcgaatgac	ttttttttcg	cgcgtaaatg	ccaaagacgt	cggcttcgag	gtacagatcg	120
aattcggatc	gctcttttcg	agctgacgtc	tttcttctcc	gagaagaaaa	aaggaacctg	180
tgggagtcgc	tcaccagggt	tttcttgcta	tttttgttcg	tattcggatt	ccatcctaag	240
aggacaccaa	cctatgattg	cactcttaat	aatcgtatac	atgctgatga	cggcgcgcgtc	300
agtgtgtgca	ttatcagcga	gaatcgcaat	ccactgaagg	ctattcgtgg	attctggtcg	360
tctcttttgt	accggtcttg	gggcttattg	tcatatcttt	ttcggacagg	atcagcgcag	420
acggcgtatt	gtcagccgcc	gatatacaag	cgcatcatgc	tgaagcctca	ctatctgtcc	480
atccccgaag	acagttggaa	gccatgaaca	atatccagct	gaatcccatc	atgaagctgt	540
caacaacaac	tcggacagcc	ccgtcatgct	cagctcgccg	ccggatatatt	cacggcaggg	600
aaggatatgt	tcgactgctt	ctttcgcgac	atagaggtgc	ccgccaccat	gtgcatattc	660
agttctacgt	catagaggat	gaccattggg	cagtcgcctg	tccgatctgc	ttatacgcaa	720
ggtgcaagag	ggcgtaaagt	gagggtcata	ttcgatcatg	tgggttcgtg	ggctacgggc	780
cgtgctactg	gaaacgactg	cgccgagccg	gagtggaaagc	ctatcctttt	atgcggtctt	840
cttccccata	ctgtccagcc	gcgtaaaacta	ccgcaatcac	cgaaggtagc	cgttatatagat	900
ggtaaaatag	gctatttggt	cggtatgaat	ggccgatcg	ctattactcg	ggcaacaggc	960
tcgggtctgtg	gcgcgatact	acttcgctat	gatgggcaat	gtggtggccg	gtttgcagag	1020
cagtttctct	tggactggta	tgctgatatc	cgacgagtca	tcaatctctc	cggtactctc	1080
ccgatctgcc	gatacccgta	tccgacgagg	gtgtgaagat	acagctctac	gctccggccc	1140
cgtggggcaa	tggcgtacca	tcgagcaggc	caccattact	gtatcgagcg	tgcttcgcaa	1200
catgtctata	tcgagactcc	ttactccttc	cgaccgaagg	actgaataat	gctctcatca	1260
cggcagcttt	ggccgcacgc	atgtacacct	gctgggtccc	aaacgaagcg	atgcccgctc	1320
gcccaagtgg	cggccttctc	ctatgtggag	gatctcttgc	aggccggtgt	actgtacacc	1380
tctataccaa	cggctttctc	cattccaagc	tgataatggt	gatagtcagg	tggtctcgat	1440
cggctctacg	aatatggact	tccgcagctt	gaaaataact	tcgaattcaa	tggtatcatc	1500

tatgacgagc	ctactgtccc	cgattggaag	ccatcttctt	cgaggacttg	ttgcagagcg	1560
aaccgctcat	ctcaaacgct	ggcgaagag	aagccggata	aaaaaattca	gcgaatcttt	1620
gttcgccttt	tctctcctct	gctctaaccg	atatgctttc	cgactaaagt	atgatccatc	1680
gtccactatt	cattatccca	tcctgtatcc	ctcatacaat	acacgacaat	actcttttct	1740
ccgccgatga	gcggagtcgc	ttccctcctc	atacgcgagt	ttgattcgta	cactagctcc	1800
cgatcggcag	ctctgaagaa	agtacgcagt	ctgctgagcc	gttttacgga	gttgggatgt	1860
ttgatcgca	caaaaacggt	atgcacggac	ttttgcgcaa	catggaagt	gacgcatagc	1920
ctcctgtgag	atcgggctgg	ggatagaggc	catcggagca	tcctcttcta	tcgtccggcg	1980
atgaaggggc	tgacgagacc	ggaggagatg	ccgagctcat	gggcgaagat	gtggctcgcc	2040
tgatcgacct	cctgctgaaa	catcggagat	ctacatgcgc	aatacggcta	tcaatacggc	2100
caacttcagc	acttctcctc	ctccatcgcc	gaagatattc	gcgtggtgct	gctcatatcg	2160
ctgaccgttc	ctatctgctg	cgccaggcc				2189

(2) INFORMATION FOR SEQ ID NO:975

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 946 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...946

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:975

gctgagaaat	tggaggcttt	cggccgtctg	ttggatgttc	tggatacctg	cgagagcagt	60
gtccatggga	tcggaaacag	acgaacgaaa	gcctccgaca	aatacaatag	aagagggtcta	120
tgagctgagc	gaagctctct	tgggcgagt	ccggacgaca	ttcgcaagga	gcttggcgat	180
gtcctgctgc	acgtagtttc	tatgccaaga	taggagagga	aaaaggccag	ttcgatattg	240
cttcgtctgt	catgctctct	gcgacaagct	gatctatcgg	catccgcata	tctaggcaat	300
gtacagggtg	agaatgctgc	cgaagtggta	cgcaactggg	agcactcaaa	ctccgcgaaa	360
aggatgggaa	caagtccgtc	ctctccggcg	tgcgaagtct	ctccctgctt	tggatgaagag	420
ctatcggatg	caggagaaag	cgcaggcgta	ggtttcgact	gggagcaacg	ggagcaggta	480
tggccgaaag	tgaagaagag	ctgaacgaag	tccgaggggc	tattgtcagt	gaagatccca	540
tgccatggaa	gcagagtctg	gcgacttgct	cttcgcctgt	gtgaatgcgc	tcgtctctac	600
ggtatcaatc	cggataatgc	tctcgaacgt	accaataaaa	attcgacagc	cgtttctcct	660
atgtggagca	gcgtgccaaa	cagcaggcaa	agctctcaga	gatatgacct	tctcggagat	720
ggatgcctg	tgaagaggc	aaaacagaaa	ggactctgac	ctcgttccaa	gcggaaaaag	780
ctattttgta	agcacgattt	agcattatta	ctataatgaa	cgaagacatt	aaaagaatac	840
ctcggcatcg	gaatattcgg	ccagcaatat	ccaagtattg	gaggtctgga	agctgtccgc	900
aagcgaccgg	ccatgtatat	aggtgacatc	acgaaaaggg	attgca		946

(2) INFORMATION FOR SEQ ID NO:976

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2623 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...2623

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:976

cggcaggatt	ggtcgatttc	ttgcgtcgag	ccaaactcag	ccataccacg	cggctatcgt	60
agctacggct	gcagcagtgc	ttgtccctat	ccagatggcg	gccagaactg	ggatgatcat	120
gatcgctcgg	gacgctatgt	gggacgcatt	tcgggtgtcaa	ttacttggag	agctgcgacc	180
ccaatgccgt	tattttacct	atggcgataa	cgataacctc	ccccctctgt	atgctcagga	240
ggtagaggcg	ttcgtagcga	tgccgtgtg	agcaatctca	gttacttggg	agcaactggg	300
atgtgcgcca	gatgaagcag	caagcctatc	agtccgatcc	gctccattga	agaatatgaa	360
tgaagccttc	atcagccgga	atgcctttgt	tctgtcgatc	ccaattactc	tgccagagat	420
ccggagctga	acctccattc	atcccgggta	gcggactcac	ggccgatggc	aagcccatca	480
tgatgctgtc	gaagccatga	aaatagccgc	tcgtccgggt	ccttatggca	atgggtgtgag	540
ccgtctgaga	acctgtatct	gcccgtagat	tcgcaagcat	tggggcagcg	tttggcgatt	600
cggctaagggt	gcattgtccgt	caaaccatcg	atctgtcttg	gccggtaagg	gcgtcctctc	660
attggccgac	ctgaagcggt	ctcgattgat	agccaataac	gaatggaagc	gtcctatcta	720
ttgggctatt	acgtcccag	caattctttc	tccaacctgc	cggactactt	gcgtcagacc	780
ggtaggccaa	tcagtttgtg	ccttttaagg	cgcgccgcgt	aggcgataac	atcatgtgga	840
aaagacctat	accaatgtga	tgaccaagtt	ccgcttcgga	gggccaacaa	tccaaggtg	900
tacttcgatg	cagatattcg	caattccacc	atacctatcg	cgtagctgtg	ttttctccgt	960
tggcaaaggc	tctgctcgaa	gaggcgatac	cgttcgtgcc	cgtaagggtgc	tcaccaaattg	1020
cctccaagaa	tcagtcctga	agccgtgccc	tatgattatc	gctcgctggg	attggcacia	1080
ccctgtacga	tcagatattg	gtggccgacg	cagaccggat	agtcaagccg	tggcaggctc	1140
ttcgatgcgt	acgtttaact	ggttcttccg	cctgtcgaa	ccaaattcat	gcaaattgctt	1200
tccgaaggag	agatcgacag	ggagagaata	cggtgtgtac	ggctcttcgg	ctgagtactg	1260
cttataatag	caaattgttg	atgaatatct	gcccgtgttc	cagaactatt	ataagatgct	1320
ctaactgatg	agcagggtaa	tagcaaaccg	caataaatgc	agctcagact	cgagaacgac	1380
ttatctgcgg	tgtgcccattg	tggtaccggg	ctttgttccc	cggtgccacgt	ggcgcatctc	1440
tgccaaagaa	ggaaaaagca	tctatctgac	ttcgatgacg	gtcccatacc	ggagataaca	1500
ccctgggtat	tgataacgcc	gatgaactcg	gggtgaaggc	cacgttcttc	tgtgtggcgg	1560
ataatgtggt	cgctatcccc	atctttttgc	cgagatacag	cgctcgtggc	atcagggtggc	1620
aatcacactt	tccaccatct	gcaagggtcg	aaagtccgta	cacgtactat	ctgaaagatg	1680
tggaagaggc	tgaccgactt	atcaattctc	gcttcttcga	ccgccgcgtg	gccatcttcg	1740
cttcatgcag	acctctctgc	ttagaatcac	tacgacatta	ttatgtggga	tgtgatcacg	1800
cgcgattata	atgtcgccct	tcacccgata	ccgtcttttg	ttcggtgggt	cgctatgcgc	1860
gcacggctcc	attattacct	tccacgactc	cctcaaagcg	gtccccaata	tcagcaggcc	1920
atgcctcgcg	ctgtgcgctg	gctattggat	gaaggctata	cttcaaattgt	ctgggcgacc	1980
cggccgacta	agccgtttac	ctgttttttt	gtccgatgat	tgtccttacg	gaagacggat	2040
ctcccactat	cctttcgctc	attacggcga	atactaccac	tccatacacg	gtgcgtgtcg	2100
tgagagcaac	atgtattcgt	tcatacggga	ctgttgccac	gtttggaatc	tttcgacctt	2160
ccggtacttt	gtatctcttt	gaagtcggat	tcggaacggc	tctcatgcgc	tactgactct	2220
ccgcgaacaa	cgatgtcggg	gtctctccat	ccatactctg	ccattgagaa	atttcctctc	2280
gaaagggatg	tatatgagca	tctcgctttt	ctgtgggaat	ggctgatgaa	gacaaactcc	2340
tgcaaagtct	ccccatgcac	cgtggggaat	ggattgtgaa	atatgtcccg	gcttcacgtt	2400
gacaagatag	catccgatct	gaccgatttt	acattccgca	agcctatcga	ctcatctatt	2460
tcgatgcttt	ctctcccgaa	gctcagccgg	agttgtggat	gaagagatct	tcattccgaat	2520
ggtggccgca	tgctgatccg	gagccgtatg	gccacctact	gcgccaaagg	cgagatcccg	2580
cgtcggctca	cacgtgcgga	ttccatatgg	aacgcggggg	atc		2623

(2) INFORMATION FOR SEQ ID NO:977

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3185 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...3185

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:977

cgtaacgatac	acggaagtaa	tggccgaaga	agaagtgcgc	attctcatct	attgtcctgc	60
cgataattcg	aatggggtag	tctgcgcacc	gcctttggat	tgactctctt	ggtctctgcc	120
tcctgctgac	tgaccaccat	gtccacgcaa	atgtgccgaa	ctgcatcttc	gtgtgtattc	180
cgaataagct	cgctccccct	gaatcagagt	gttgccgcgta	ttcatggata	cattgccggc	240
ttcgacagtt	tgattatata	atcttctctt	ccttcgaaag	ccaacttcag	cttcttgcac	300
cgaatcgaa	cgtactctct	gtattatagt	tcatcccgaa	attagcttcg	taccactga	360
tgctgcacg	ttgggttggg	tcttttcgct	gagtcgaaat	aggaatgctt	acgtgcattt	420
tcgggcagag	aggggttatt	tttgcatctg	tcttagcccc	catggccacc	tcagccgac	480
cttgagtacg	agtttgaccc	caccgggacc	gaagagcttc	tcggccggac	cgagatcgaa	540
gacatttcca	aaggattgaa	cgccttctta	ccctcctgct	gagcttcagt	cgttcttttt	600
ccatgaagta	acggcgggat	gaatcacgct	gcatatacgt	aggattctct	cggtgttgaa	660
gggtatagga	ctgcccagag	gtttatccca	agcttgggtca	caagcagata	agtattggct	720
ttctcgtcgt	aaataattcg	gtgcggatgt	tatccggagt	cttcagatcg	agtggatagt	780
tgccccaga	taacggtagt	ctttagcttg	ggtcttcttg	acggggaac	gagcgtatcg	840
gccggagtgg	gagttgtata	gtgattgttg	atggcagtc	ggcaggtagc	gagccactcg	900
ccggacgcca	tgtgacaaaa	acaaggccgg	cattatgggc	agtagagctg	caagtagccg	960
aatgggtttg	tttttctttt	cattatcaag	acaccctgta	tccttctttg	tttgagaaaa	1020
ggtataact	tcgtaatgct	cgcttgataa	tatcttcgac	agctaaggac	gaatcctcga	1080
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gtgtagactt	gacagtttgt	ttggtagcat	atattgtctc	ttgtttatac	gtgtaaaata	3120
ctaaatatta	ttgataacgc	aagcaatgca	ggcaaatatg	tcgcaaaaat	gccgtgcaat	3180
ggtct						3185

(2) INFORMATION FOR SEQ ID NO:978

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1249 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1249

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:978

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aagagtcgct attggccggt gatcaatcga gatatatcct atctgcaaag aaggaactgt      60
acgacatggc acctctggcg cgtgtgcctc gcaaaggggtg ggcccgcatac cgaggagtat      120
acgtccggaa gagaaagcca agcgaatatg cgttccggct cattgggcag tcgtaccatc      180
ggcagcgttt acggatgatg gaaggggggtt tgtcacaagg gaaaaacggt atagaactct      240
tctacacaag cagctcaggg gagaaatagg caaagccagc cgtgtgtatg taggggacga      300
agaatactga atacgataca ggctcccaag cgtggctgcg atgctatacc actctcgaca      360
tggatatgca gagcatagtc gaagtggagt tggcagcaag ctcgaagagg tgcagggaga      420
aagtggaaac gccatcctca tgaggtagct acagggcagg taaaggctat caccaatcta      480
cagcgcacgc ctccggcgga tatatcgaat ccaagaacta cgcagtagcc gatatgtcaa      540
acccggttct acgttcaaga ccgtgtcgat gatggtagca ctcgatgcgg cattgtgcat      600
ccggaggaca tcatcgaaac gggcaatggt ctcttctcgt aggcaagcgt actgtaagag      660
accataatgc acacaaagga gggtagtccc ccttacggca gctcagacga tttggtactc      720
aagcaacgta ggcgtgccaa aatcattctc aaaggccttg cccacgatcc cgacaaatac      780
gtggggcggt caggcgaacc ggtatcacgg acaagttccg tctggaaata cccgagaagc      840
tccggccgta gtgcgcaagc gtgccgacaa tcttgaccgc tgtatggcac gacccttgca      900
tggatgtcat tcggatacga aacccaaatc cgccgatcca tacattggct ttctacaatg      960
ccgttgccaa cgggtgtaga tgatgcgtcc ctacttcgta acgaaagtga tggatagagg      1020
ggaggtcgtc aggagcaccg gccggtagta ttacgcgatt ccactctgcaa gcactctagc      1080
ttatcgccat acaggatatg ctctcgaacg tagtggccaa agggaccgct cgccgggtcaa      1140
aagctctacg gtaaaccatca gcggcattga ccggtaaagc cagatctcac agggcaaaaag      1200
cggttatcgt gcaggtggca ccatgacttg gtattctttc tgtggttat      1249

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(2) INFORMATION FOR SEQ ID NO:979

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 798 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...798

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:979

aagccgagtc	caaaccgctt	tattacccca	tggcaggtac	tccgtcacac	acgttacggt	60
tgggatctat	catctggcca	caggtaaagac	cgtctatcac	aaacgggtga	acccaaggaa	120
aaatttctga	cgaatttgag	ttggagtcgg	acgaaaatat	cttgtatgta	gctgaggtga	180
atcgtgctca	aaacgatgta	aggtaaattgc	ctatgacgct	gagaccggta	gattcgtccg	240
tacgcttttg	ttgaaaccga	taaacattat	gtagagccgt	tacatcccct	gacatccttc	300
cgggaagtaa	caatcagttc	atttggcaga	gccgtcgcga	cggtggaacc	atctctatct	360
gtatgatact	acaggtcgtc	tgatccgtca	gggacaaaag	gggagtgagg	ggttacaaac	420
tttgcaggct	tcgatcccaa	ggaacacggc	tctatttcga	aagtaccgaa	gccagccctc	480
tcgaacgcca	ttttactgta	ttgatataca	aggaggaaaag	acaaaagatc	tgactccggg	540
tcgggaatgc	accgcactca	gctatctcct	gatggttctg	ccataatcat	attttccagt	600
cacctactgt	cccgcgtaag	gttacagtga	caaatatggc	aaagggcttc	acacactctt	660
ggaggctaag	aaccccgata	cgggcttgcc	atgccggaga	tcagaacggg	taccatcatg	720
gcggccgatg	ggcagcacct	ctttattaca	agctcacgat	gccgcttcac	ttcgatccgg	780
caaaaaatat	gggggccc					798

(2) INFORMATION FOR SEQ ID NO:980

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2111 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2111

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:980

tgcgctgaat	tctctccacct	ctatagccgt	tttgacctat	ctgttttttg	tattcatata	60
tctcttggtc	caaggagtcg	atagatttct	atcatgatat	gaggtataag	ccggaataac	120
cctcacggat	agtccaaaca	cagataagca	cgcaccaa	tcgttgaaga	atttggtgcg	180
ttccttatct	attctactcc	ttaaattggt	tttatgccat	gcattttata	tataaataga	240
atttgtttgt	atattttattg	aatcagttt	atatatagat	caaaaacgat	ctattacaaa	300
tcgaaaatga	tttatataca	gatcgtttcc	ttatctctca	aatcatgtt	tcgatctgaa	360
aaagttcgtt	tctcactttt	ttgtcttcaa	aaccgtttcc	atttacgtgc	ttatttgga	420
tgattctaaa	ctcatcttca	tgttgaaaac	tttttttggc	acgtggtttt	ccccatacag	480
gatgatacaa	acaaggagtc	tttttctcct	tgcatggttt	ccctaattgt	ttgggcgagg	540
agagttcatg	gggataacag	acagtatacg	aatggctttt	gctgctatgg	gctttcaagt	600
tgaaattttt	cgatctgaaa	aaatgctctg	acaaacaaaa	cttcgatatt	tcgcttacat	660
cgagttcatg	tcaggccggt	ggtgccgaat	gtgtgcagct	gacaaattgc	ttccggatat	720
ttagcattaa	tcggagaata	ctatatttgc	gaccgaaaac	aagagatcac	ttacggaacc	780
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atctgtggca	tagaccacaa	atagaaaacc	aatactaata	tgaaactttc	atctaagaaa	960
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gcaaaccctc	actatctatg	gtaatcgacc	cgattgggct	gtcgatctac	cggtgcaacg	1260
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ccaatcagat	cgcaggtgaa	gaaagacgaa	agtgggtgaat	gctttgccca	cactatctcc	1800
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gagtctcttt	tagggcagaa	gctgctttat	acgatatgaa	tggggtaaaa	gtctatagtt	2100
tcgcggtgag	t					2111

(2) INFORMATION FOR SEQ ID NO:981

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2666 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2666

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:981

cagtatcaag	ggaaaaagact	tcatagtata	aagggtgggg	gctttataga	taaagggtag	60
agggttttacg	gtataaagta	tggaggcttt	atagtataag	ggtagagggt	ttacagtata	120
aagtatggag	gctttatggt	acaaaaggcaa	aggcttcacg	atatgcccta	taggtcaaat	180
tcttacattc	cacagaatac	agaaaacggg	tgtttttgct	ccattgccat	atatcggttt	240
gtatgacgac	ccatagtcgg	acaaaagcta	tgctgtcaat	cttggaacat	ccccttctct	300
ttcttggtgcg	atcgaggagg	ggattactgt	tttcagtcct	cgtacggcat	cttgagagggt	360
gaatttatcc	gatggtagtg	ctgcttttga	agatccggct	atcagccggg	agtagggctt	420
ataagacgat	aattgtactat	tatatataaa	aaagatggaa	ttgtttactc	cggttcggtc	480
tttttatcgt	tctttgtgtc	agtctatattg	tccgtttttc	atctccggac	gaaaaggggg	540
gctgcctaaa	tcctacaggg	cggtagcatg	taaggccggg	cctcttcctc	tacaggcaaa	600
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gccctgcatc	ctcgtggggg	ttgtacctgg	ttgtatcgg	cgagtcggac	tgtggcacaa	720
aacgcctccg	aaacgcggta	tcgtacgata	cggataccgc	cgtactctcc	gaagccgatg	780
tgctcggatc	gctcttagtg	agaatgccac	agtgaagtg	gccgatattg	atggcgcaaa	840
caggaatatg	cacgtagggc	agcacgtgcc	gatctcttcc	cgaagtagac	ctcaatggcg	900
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cgaaggtatc	gaaatggggc	tacacacaat	acgcaaggag	gggtgaacgt	ctccatgcca	1020
ttggtgtcgc	acagcttttg	aaaagcattg	ccatgaccgg	agaacagctc	gatctggcct	1080
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ataatcaggc	catattcgac	tttatgaccg	caaaggccga	ttggacaaga	tgaacggcat	1980
ggggattccc	gaacaatgag	cgtaaaaaaga	aatagtaaca	aaatacacct	gtatgataaa	2040
tatgaaaaga	tcgaatacct	gggcagtgct	atcctcctca	tagtcctgcc	gttctctcatt	2100
ctcacgactg	caatggcaag	aaagagagcc	ggccgtctgc	tgctgattcg	gcagcttggc	2160

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tacgccttac	ggccgaagta	ggtatcgagt	gggacgcgga	caggtgctcg	ccgagttgga	2340
tcggagccaa	ctaccaggc	caaagtacaa	ctggagaata	cgcgaccaa	tttccagcgt	2400
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gctcgacgtg	gccgagacta	cttacaacaa	tctgctggaa	acaccgtgct	ccgaagccct	2520
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ctatctatgt	ggtagaaaga	tagctcccgt	aaagctccgc	atcgacgtct	ccgaacagta	2640
tttctccgcc	tgaaaaaggg	tatgcc				2666

(2) INFORMATION FOR SEQ ID NO:982

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2260 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2260

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:982

aatcgcttc	gaactcggnc	cccagaccct	gatagctgga	atctacacat	tccgtacagg	60
tctcaaaaag	ccataaactg	cggccgtatt	tcattatctt	gttcataat	catggactat	120
tatgaataac	gatctccaat	ttactatgta	gctaagaccc	tttatgggtt	ggaggatgtc	180
ttggctgccg	aactaaagcc	ttgggtgctg	aggaggtaac	cgtcggccgg	cgtatggtoa	240
gttttgagga	gataagagga	tgctctatct	tgctaacttc	cggttgcgta	cagcctgcgc	300
atattgaaac	ctgtaataac	tttccatgcy	aagacgacag	atgaatttat	gaaaggctca	360
gacttttcga	ttggacgacc	gttatctcat	cgatcaaact	ttctccattg	attccgtcgt	420
ttattccgat	tcgttcaaga	aagtcagtat	ataagttatc	gtaccaaaaga	tgctttgggtg	480
gattttcttca	tgatcgtgag	ggcaaacgtc	cctctgtccg	gctctccaat	cccgatattt	540
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aggcaggctt	tgctttccag	cggtgggccc	atttcgatct	cgatctatat	gatagttggt	840
ccatgacgac	agtgcggaac	gtgtattcga	tcatatcatc	taggttccga	tattttgcca	900
caggccgtgg	ctgcggccag	aagtaacgtg	ggcgagccgg	tcttggcagg	tatatctctc	960
tgagtgtcct	tcccatgcag	agcgtccgaa	gcctgaatcc	aaggctatgc	tggtgatgaa	1020
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agcgactcaa	gcataattat	gcaggttgct	ctgcatggat	tctggcttca	agccggagca	1140
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tgtgagttgc	gaggttatga	actcttgagg	gacgacgcga	ttcatttgcc	gaaagaaaaa	1260
gtcgtcgagc	cgaagagaac	aaggcgtagg	acggagaatc	gaccgtcgtg	acgtttctgc	1320
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acgagaggct	cgctggccga	acgatagggt	cgatcttcgg	atgaatctga	aagaggacct	1500
cgcaaatcct	cttcaaagcg	attcaggtga	tccgcaacga	tgaataataa	agaatagaaa	1560
atcaaaataaa	tagataaatg	aagaagacaa	tcttccaaca	actatttctg	tctgttttgc	1620
ccttacagtg	gccttgctt	gttcggctca	gtctcctgaa	acgagtgtaa	ggagtttact	1680
cttgagcaac	tgatgcccg	aggaaaagag	ttttaaactt	ttaccccgaa	tacgtggctg	1740
gtttgcaatg	gatgggagac	aatttgctt	tatcgagggt	gatgatttag	tttttaataa	1800
ggcgaatggc	aaacggctca	gacgaccaga	ttttctgctg	ccgatctcaa	tgactctatg	1860
ccgaggggatg	caaatttcag	acgactgatg	ctttcccttc	attccgcaca	ccgatgccgg	1920
acggggactg	gtcgttctat	ttaccaagg	aggattagtc	gattcgatat	gcttgctcga	1980
aagggtgactt	atcttttcca	taccaatgag	agacggcttc	tttgattttt	tctcctgtgg	2040

gagaccgtgt	tgcctatgca	gaaaccataa	cctttacatt	gctcgtggag	gtaaattggg	2100
agaaggttgt	cacgagctat	cgctgtgact	atcgatggaa	ctgagactct	cgtataggcc	2160
aggccgtaca	ccagcgtgaa	ttcggtatcg	aaaaaggtac	attctgtctc	caaaaggagg	2220
ctgccttgct	ttctatcgaa	tggatcagag	tatgtgaagc			2260

(2) INFORMATION FOR SEQ ID NO:983

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1318 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1318

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:983

aaagtgtccc	agctgatacc	ggcaagcatt	gatctcgatc	tcgatcgaac	gtccaccacg	60
gcacaacgaa	tacagaggcg	aacgatgtca	tacgtttact	tgtgcattat	agggagagac	120
gcgaacgagt	ctgtgtaccc	cattctcctc	ttgagaaatc	cgtaggccaa	attgccttcc	180
acctgcatcg	tcacagctta	atacctgctt	cgtctccatc	ctgccagttg	gttatcgta	240
cttgaacccc	tgcttgtccg	cccaacgctg	atacatagcg	accagcatgg	aggccagtct	300
tggtctctcg	ttcttctcgc	accggcattc	actttgagca	cggaccgaag	tgatcctctt	360
cggatcggag	catattcttc	agctccacct	ctctatcagc	cggatggcat	gagcataggc	420
ttcatccacc	tcctcttcgg	tgatataccc	tccttgcatg	attcataagc	gagcttcacc	480
tcctcggcag	tgtgtcgatg	gcacgcgtagt	agcctatcca	gctcttcagc	tcctttcacct	540
gcgcacatctg	gcctcggcac	gcttattgtc	ctcccagaag	gcaggatctg	tgtgcgcagt	600
tccttcctctt	ctaattggat	acgtctgtta	ttgacgtaaa	gataccccct	cagcgcatca	660
cggcgctcca	acagagaatt	cagttgtcta	tagtaatcat	cgatgattat	atgagttttg	720
ttagtttttg	cttcgctcgt	ggccgaataa	catctgccga	aaaaaacact	gtgcccaagt	780
gcacccgcat	gcttcgggga	cagtacattg	gaaaacgagg	ctcaaaggta	cattttttcga	840
tggtcttcggc	atagtgttcg	ttgatcactc	gccttttgag	ttcatcgtct	cggtcagttc	900
gcccttctcc	agtgtaaaag	gctcggcgag	ggcgtaattg	acttcacctt	ctcgtaagca	960
gcaagcgaat	cttgtgcagc	tctattctgg	ccatcatcag	gcggttgatt	tcaggatttg	1020
cagccatctg	tccacagaca	ttgtccgggc	ctgttcaagt	ccccttttga	tggcagccgt	1080
cttaccaatt	cccaattcgg	atagaccaag	gcactcacat	acttgaactg	tcacctatca	1140
ccgctatctg	ttcgatgatg	ggatccttgg	tcagcacccc	tcgatcatct	gcggagctat	1200
gtactttccg	ttggcagctc	tgtacggtct	tttatcctct	ccagaaaata	aagcgttcca	1260
tccggatcca	tgcgtcggca	ttcgccgtac	ggaaatagcc	gtcaggcggtg	aaggcttc	1318

(2) INFORMATION FOR SEQ ID NO:984

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 763 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...763

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:984

caaagcagac	agaatcatga	tggggacagc	aatgtccgaa	tattctctca	tccaatgtcc	60
tccatgtcac	aggcagggat	gtaagccaag	agtttataga	caaaagaatg	agactgatca	120
gtaccaatcc	ccaaaaagaa	tgccggagaa	gaaataataa	cattgaaagg	atttggcact	180
acccaatttg	cctcgaaatc	gagtctatac	cacatacgat	cgtaaaaatc	cgattggagc	240
attctatttt	ctccttttct	tccgattggc	aaaactcctc	ctccgataga	tagactttcc	300
caacccccat	cgttctgctt	gccgattgag	cgtatcgttc	atgtcggatg	caaagctttc	360
atcttctgat	acaaatccgc	cacatgccgg	taaaaccgaa	tagcctcgga	aatagcttca	420
caagcgaaaa	actcaggaca	tcaatactgc	tccgcatata	agagcataaa	cgattgtaga	480
ctccagacct	agggaatatc	tacaggcagc	gagagatgta	aagaggagaa	gatgattcta	540
agaccacgat	gaaggcaatg	ccgggcaaaa	taatggcaag	gaagtcataa	gagaaaattt	600
ttccataaag	tatcatccgt	atttaatcaa	agaataaata	gaagtaagga	ttcccccttt	660
cttttagtgt	cgtagtctta	ttcaggagcg	caaatttagt	catattcgtc	cgcttttcaa	720
tggataaaac	cgccactttt	tccgttttcc	aagcattacc	gag		763

(2) INFORMATION FOR SEQ ID NO:985

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 890 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...890

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:985

ccgacccgct	tccagcttgg	gtttgctcag	atagtcggcc	aaaggatcgc	agccaccatg	60
ctgctctctt	ctatgtacgc	accggattct	gtatcggatg	caaggccgac	acatcgcctt	120
ctcccaaat	gcagcactg	ttcttcatat	ctgttggggg	gtgatgccgt	gcgcttcgtt	180
gtaggccagt	tgttttcgcg	tccgctgca	gtctcgtcca	tggtagactg	catactgtcg	240
gtgatttgtc	cgcgtagaag	atgacacgcc	catgaatgtg	ccgggcggca	cgtctgcagt	300
ctgcgtgagc	gaacgatgcg	agcgcaggaa	tccttctcta	tcccatccag	aatagccaca	360
agcgaactt	ccggcaagtc	caatccttcg	cgagcagatt	caccccgatg	agtgcacgt	420
agacccctt	gcgcaggtct	tcattgatac	cacacgctcc	agcgtgtcca	catcgctgtg	480
tatgtagccg	tgctgatacc	gtggcgtagc	aggtattcgc	taagctcctc	tgccatacgt	540
tggtcagggt	cgttaccagt	acgcgctctt	tcttttcgat	gcagcgtgta	tctcctccat	600
cagatcgtcc	acttggtttg	ccgtcggctt	gcagtcgtga	tgggatccag	cagtccggtc	660
ggacggatca	gctgctcgac	gatcaccctt	cgcttctgtt	cagctcatag	tcggcaggcg	720
tggcactgat	ataaaggctc	ggggggtgag	agcttcgaac	tcgtcgaagc	gaagcggccg	780
attgcgagag	cggcaggcag	gcggaatccg	tattcgacca	gattctcttg	cgcaacgatc	840
gcctccgtac	atggcacgta	tcttgcggtg	tcgtacatgg	cttcgctatg		890

(2) INFORMATION FOR SEQ ID NO:986

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 3542 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...3542

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:986

aggaaagttc	ctcccatgtc	tccagcagtt	tttgcttgta	agcctccggt	tctcttttaa	60
tcggctgaac	gagagcttgt	ccgccttggg	gaatacgagc	tgaacggaat	cccgttctca	120
cccagccatt	ggagaaactc	caagtcgtct	tctgcggttc	atgcctgcaa	tcgatcagga	180
caaagagact	ggaaagtgtc	cgcgacagag	gatgtacgtc	tcgatgatcc	tgcgcaagga	240
ttcccgttgg	acgcacccaa	acgggcatat	ccgtagccgg	gcaaatcgac	cagaaccacg	300
aatcgctgat	gataaaatgg	ttgatcagct	gcgttttgcc	cggttttggg	aggctcatggc	360
cagtcctttt	tggccggtaa	gcataattgat	caagaggatt	tgccacatt	cgaacggccg	420
atgaaagcat	attcggggag	ctcgtatcag	gacatttgcg	cacatcggta	ttactgatta	480
caaatgccgc	ttttttat	ccattcgggt	ctgtcggtat	ttatatacgg	atagccgtaa	540
ataattatat	ctttgtgaca	tacaaagata	gctttctttt	accggttagc	ctcaattaga	600
atatgaacaa	atcgcttata	attcttatct	ataccctggt	tgggttttgc	tcacgtctct	660
gcaaagtctg	gcattggaga	gcgccacccc	ggcaccacct	ccttttggaa	tacgccctcc	720
gcttattatt	ccgtaggatc	gttgatgcct	atatcatagc	cctgtactat	atcaattatt	780
ttctatagcc	ccattcatga	tcaagaggca	cctctttcgt	ccctatatcg	tgcgtcgctg	840
gccttggggc	gaataggcat	gttgcttccc	gtcgtcttcc	acacgcttgg	caatggactg	900
taccggggac	gtccgaagga	cagatgcctc	ttacggggaa	ggcttcacgc	cctccatagc	960
ggccatagcc	gtagggctgt	cgtccgcgga	gtccgcgagt	gggtgcgtct	ggctcgtcgg	1020
aataccaatt	ggagatagca	ctcaagaaca	agtccatcgc	atacgatcgt	gccgaagccg	1080
gctgcgttct	ttggaacagc	cggtttcttt	ccacaacccc	ggcacggagc	gaaagcgga	1140
aacgcacctt	cctctactcc	tgtcagtcga	caaacaacga	atagtcatgc	gaaagaaacg	1200
ctccaatccc	tactacaaag	tcagcggcgg	aagttcagca	aacgaaatc	cggacgcaga	1260
tattcgagaa	agagagaaga	aacggacggc	gacgagggct	gatgatcagc	ctgtcctccc	1320
ttgcgcctc	ggatatctga	tagccaagcg	atacagggct	tggttcgttt	ctcggccgaa	1380
gtcgcctaca	ccgtaccgca	tacgatagac	aggctcacc	tacaccgggt	gaggatttcc	1440
ttacccaaag	gacggtcagc	tggcggtgcg	cacctgccc	caagactctt	ggctggacta	1500
tcgctctccg	gacggagcga	tgcagatacc	ctgctgatct	cgctgccggc	cgagggaaaa	1560
gaagtcgtac	ccgtgccgga	cgcaactact	attaccacgc	taagataaac	ggactcagcc	1620
cggccgcacc	tacactca	gggtcaagac	gggagagcag	acatcgccgt	gtaccgatcc	1680
tccattcccc	acagttccgg	tgtaccgac	ttcattatat	cggggacgtt	caggatccgg	1740
gcaacggagg	cagtcaggct	ctgcccacg	actgcgcacc	ctgcatccca	accccgattt	1800
tctggctttg	ggtgcgatca	gatcgaaggc	cccacggatt	tctattggga	agtatggcat	1860
cggtcatagg	cgactggacg	gcacgcacac	ccgtcatcgc	cgctaccggc	accacgagta	1920
tatcaaagga	ctgaaaagac	agctcgatcc	ccgttgggta	ctcagtacaa	ctatccggcc	1980
aatggtccca	aaggcttcga	gcggcggtct	actacataga	cttcccccat	atgcggctca	2040
tcgtcatgga	caccaacgca	tccaatggcc	ggcatccgta	ttcaaccacc	gcacgtgggt	2100
gaaaaaccac	tcgaaaccac	cgtacagccg	tgggaaggtg	tcagtgtcca	ccacgggtgt	2160
attcgggtgc	gcagggacgc	atgaacccga	tcacccgcta	cggctccgct	ccattctgga	2220
ggaaggcggg	gccgacctcg	tcctgcaagg	acacatcatg	cctactcccc	tatcaccacc	2280
aagacggagt	ccggcacgaa	gacacaccgg	tatatatcat	cagcagcgca	tcgccccagc	2340
actaccgcaa	cgattctccg	agcagcacga	caggatcggc	tccggcctct	acctctatca	2400
gccatccacg	tcacgcaggg	agagatccgc	taccgctcca	ccaccttcga	aatcgcccgt	2460
acgacgacct	gcacctgaag	aagcagggag	gccgaaccaa	gtcaaggaca	atgccgagga	2520
ctggaaagag	atcttcgctt	tcgacaactt	gccgacagca	aaaaaggccg	taaaaagcgt	2580
gccgactatc	ggcaggcgcc	caagaacgag	cagccggaca	tcggtaagcg	gacgatcggg	2640
ggcgcgaaaa	tcagatcgaa	aacgaacgaa	cagccacact	gccaaacaact	tttcatacct	2700
tcgttgcggt	aacgacagaa	tagaaacata	gacgatcctc	ggtcaaaggt	cgcgcggtcg	2760
tcgattcttc	gattaactaa	caaacaatga	aaaagaagac	cttatgcgta	gtggctttgc	2820
cacacgtgcc	atccatggag	gcctatcgag	aacgccttcg	gctgcttagc	cactccatt	2880
taccaaacad	cactttcggt	tttgacactg	ccgaacaggg	aggccgcccgc	tttgccggag	2940
ggaagacgga	tacatctata	cccgtctggg	caaccccaac	tgcacccaat	ggaagagaaa	3000

ctggccatgc	tcgaaggcgg	agaagccgcc	gcacgcgctc	atccgggtatc	ggagccatca	3060
gctctgccat	ctgggtatgc	gtgaaggcgg	cgaccatata	gtagccggca	agacgctcta	3120
cggctgcacc	ttcgctctct	cacccacgga	ctgagccgct	acgggtgtgga	agtcaccctc	3180
gtggaacccg	ccatccggaa	gaggtggagg	ccgccattcg	cccgaatacg	aagccgtcta	3240
tctggagact	ccggccaacc	ccaatatgta	cctgaccgac	atcaggcagt	ctgcgacatc	3300
gctcataagc	acgaaggcgt	acgcgtcatg	gtgacaatac	ctactgcacg	ccctatatct	3360
gccgtccgct	ggagctgggt	gcgacatcgt	ggtacacagc	gcgaccaagt	acctgaacgg	3420
acatggcgac	tcacgcgcgg	attcgctgta	ggtaaagagg	actacatcaa	ggaggtgaac	3480
tcgtcggcgt	caaggacctc	acgggggcca	atatgagtcc	gttcgatgtt	atctgatcag	3540
cc						3542

(2) INFORMATION FOR SEQ ID NO:987

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 5277 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...5277

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:987

gaggcacgaa	ccgagcctac	cgctcctgtc	ggactgatta	ccctcagcat	cggaaactca	60
agtgcgagag	tatctcgatg	agttggcttt	cttgtgcgaa	cagccggagc	gcagccgata	120
gcccgccttca	cccagaaact	ggatcagcca	attccgtaac	ctttgtaggc	aaaggcaaat	180
tggatgagat	acgcgctatg	tgcaggagaa	cgagatcggc	atgggtgggt	tcgacgacga	240
actgtgccca	agcagctgcg	caacatcgaa	aaagaacttc	agaccaagat	cctcatcgta	300
cgggtcttat	cctcgatata	ttcgcccgcg	gggcacagac	ggccatgcca	aaacgcaggt	360
agaactggcg	cagtaccagt	atatgctgcc	tcactgacgg	ggctatggac	ccacctcgaa	420
aggcagcgag	gcggtgtcgg	ctgagaggtc	cgggagaaaa	gcagttggag	acagaccgcc	480
gtatcgtctt	gacaaaatag	ctcggctcaa	agaagaacta	agggacatag	acaagcagaa	540
tccgtgcagc	gcaagaaccg	tggcaagatg	gtacgcgttg	ctttggctgc	tatacgaatg	600
tcgggaagag	tacgttgatg	aatgtcctct	ccaaaaggag	gtcttcgccg	aaaacaagct	660
gtttgccacg	ttggatacga	cggtgccaa	gtgatcatag	acaatttgcc	tttcttgctg	720
agcgatacgg	tcgggttatc	cgcaagctgc	ccacacagtt	ggtcgaatct	ttcaaaagta	780
cactgatgag	gtgcgagagg	cggatttgtt	ggtgcacgtg	gtggatatgt	cgctccggca	840
ttcgaagagc	aaatagaggt	ggtgaaccag	actctggcgg	agtaacggca	ggagaagaaa	900
agccgatgct	tcttctcttc	aacaagatcg	agcgttctct	ttcacacca	aagacgaaga	960
cgaccttact	ccccgaacaa	agagaacata	agtgcgagg	agctgcaaca	gacctggatg	1020
gcaaaactcg	gaatgactgc	ctgttcgtct	cggcgaagaa	aggcaccggg	atggatgcct	1080
gaaagctctt	ttgtacgaga	gagctaaggc	aatccatatc	acgcgctccc	ctacaatgac	1140
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aattccttta	gtggttctcc	atcggttgcg	cgaaattctc	tatctttgat	agattgttga	1260
tcttgagacc	ataatttttg	tggctctgtg	catcgacgac	ttcgatcatc	aataacaata	1320
aacatcagta	gcactgtgga	cgtatctgca	tatctttttt	ttcgctcgca	tagagttggc	1380
tctctcttaa	cgaacgcgtg	ttgatggagg	ctgccgaccg	gctttgcccg	tttacgacag	1440
gatcaagttc	ctgtccatct	tctcttccaa	ctggaggagt	tctataccgt	acgggtggcc	1500
tatcatcagg	ccgtcctacg	aaacggcgcg	acaggagcga	ggccgaagag	gattccgatg	1560
cggatgctat	atcctgcaag	ctattcgggg	gactgtaate	agacaggacg	aactgtatat	1620
cggatttttt	acgatcagat	cctgcccacc	ttggaggaa	ncggtagcga	ctgcgtacgg	1680
catgccccca	ctcatccgga	tcataaagcc	tacctcgtcg	tttcttccac	gaggagattt	1740
tccctctgct	ctatccgatg	ctgtgctgcc	gagcaagggtg	cgtacattta	tccgttcagg	1800
taggggtgat	ctgctgttgc	gctcaaagaa	aaagagacgg	acgaggccta	cagctatgca	1860
ctctcaatgt	gcctaccgac	ggccttcttc	gcttcgtaga	gctgccacgg	cccagaccga	1920
cacattttat	tactactctt	ttctggaaga	tattatcaaa	agcacctgga	tgtagtcttc	1980

cccggatacg	aggatgatgga	cagctattca	tcaaagtgtc	gcgcgatgcc	gatttgctgt	2040
tggatgcaca	gcgtcctgag	atctgcccgg	agagatccgc	aagaagggtga	agactcgcaa	2100
gctcgggtctc	ctacgcgatt	catgtatgac	ggcgcatg	ccgacgaggt	gctgctgaca	2160
tctgcagttc	gtgcgacatc	gatccggagg	aggcgattcg	gagtgaact	acgtcaatct	2220
gcaagatctg	gctatgctgc	ccaatccgtt	tgccccagac	tggagacact	cacgccggag	2280
cctctcctct	cgaagcattt	ggacaggccc	cctctctgat	ggaaggcatt	cgtaggaagg	2340
actacctgat	tctgtgcctt	actatacgta	tgactatgtc	gtgcgcctgc	tgatggaagc	2400
gccatctcac	cggatgtgtc	ggaaatacgc	cttacacagt	atcgcgtagc	gaaaattcgt	2460
ccattatcag	tgcatgggaa	gcggctgcac	agagtggag	aaggatctcg	tcttcgtgga	2520
ggtgaaagcc	cgattcgatg	aggaaaacac	ttgcgtttgt	cagagcgtat	gcgccgttcg	2580
gggattccga	tcgtttaagt	atgcccgggc	tgaaagtcca	tgccaaaacg	gctctcatcc	2640
tctatctaca	ccggccgggtg	aacgtccgca	aggcatcgct	ttgctctcta	cggggatttt	2700
aatgagacca	ctgctcgcac	ttactccgac	actacgctga	tgacgccaat	acggacattg	2760
tgcatgatgt	gtaccgcctt	ttccgcattt	tgccggagat	cccgaaccgg	cacgtttcag	2820
tcgtctgctc	gtggctcgct	acacatgggt	gaagcattta	ccaacctgat	cgaacgcgag	2880
atagaaaatg	taagcgtggg	aagcgtgggt	atatgtctct	gaagatgaac	ggcctgcagg	2940
caagaatgtc	atcacacagc	tctatcgggc	ttccgaagcc	ggtgtggagt	cgatctgac	3000
gtgcgaggta	tctgctgttt	ggtacccgat	atgccacaag	tcgcaatata	cgtgtcactc	3060
gattggtgga	tatgtatttg	gagcataccg	tatctggtgc	ttccacaacg	gggggaaaga	3120
agaggatttc	atctctcggc	cgactggatg	aagcgcaatc	tatacaaccg	catcgagact	3180
gcctgcctgt	gctggatcct	gctttacgaa	gagagattat	cgacatattg	gagaccagct	3240
tcgcgacaa	atcaaggcct	gccggatcga	ttcttctctc	aacacattta	caaacacaat	3300
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aggccactcc	tgctgcaaaa	taatgatgaa	taagaccggt	ttcctccgta	tctgtctgtc	3420
actggcagcc	tttgtttctc	gtctctattc	ctcgtggctc	aacgacattc	ggaagccttg	3480
agcgttgcca	tcgtgacaaa	ttcagccctt	tcattcatta	cggcctctca	gtgagcttgg	3540
aggggttttg	caaggcaaac	cagtgaagaa	cggatatgcg	aacagatcta	ctctttcgga	3600
atacgcgaca	tgaagcaata	cgagccgtgg	ccaagcgggt	ccgccccgac	agatgggatg	3660
ccgatgccat	agtagcttag	ctcggaaagc	agggatgaag	agtatcgtgt	ttacttccaa	3720
gcatacgatg	gcttctgcat	gtatggctcg	gctgagactc	cattcaatat	agtgaggcca	3780
ctccttcgcg	tcgcgatgtg	atgaaggaat	tgagcgatgc	tttgagcgtt	cgggtatgaa	3840
gttcggcggt	tacttctctc	ttattgattg	gattttcccg	aagccaatcc	gatcagcgat	3900
cacaatgctg	atcggattac	ccggcacatc	accaatacaa	tatgcgtcag	gtcagagaga	3960
tcttcacggc	tacggccctg	tcagcgaggt	tggttcgat	atgggatcgc	ttacgccgag	4020
cagagtgaag	agttgtattg	tttggtgcat	gagctacagc	ccgattgatg	gttagcggac	4080
gcttaggttaa	tgaccgagcg	gactttgccg	tcattggagac	aatgaacttc	ctaccgaacc	4140
gattgccatt	ccttggcaga	cgccgcacat	atgttccctg	agacatgggg	ctatcgctca	4200
tggcaggaga	gaggtctatt	cgggacaaa	ctcgcgagaa	gttcgaagat	ttggtgcgag	4260
tgggtgtcgt	gggggtaatt	atctgctgaa	catcggctct	gaaggcaatg	gcccattattg	4320
ccttatgaat	ccgaagtgtc	gcgaaccatg	ggcgaatttc	tgatatgtat	ggagaaggta	4380
tttacggtag	ggaacgctct	ccttttccctg	actcttgcct	tttgccgaag	tttcggttcg	4440
tgattccatg	ctttatctgt	tgttcgtccg	gatattggcg	gcaaggaggt	attcattccg	4500
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catttcgcaag	acgggggttc	gtatccgaat	gcctgcaagt	atgcctagtc	ttttcttctg	4620
ctggcttttg	cttttgacag	aaacgatttt	gtactgcagg	ccgacctcaa	ggctatcccc	4680
tgcatatggc	caatagctct	cggataacgg	ccatagctgc	tgggactact	atacgggctt	4740
caagagtata	acggcatgaa	gtggcaagcg	gtttctgtct	cgcgtgctat	tatatatacg	4800
gaatggaagc	cggcaagaca	ctacggcttt	ctgtcgggag	ggaggaacga	gaattacatt	4860
ggaaggaggc	aaatcagagg	aagtatcgat	ttcgcacgac	gcttgtcatg	gggcaaaccc	4920
tatgttcggc	aagtgggtgg	ggtattcggg	tgattccaga	caatatcctt	cgaggcgact	4980
ccatccctct	acccttaaca	aaggtgggga	agaaatgcct	gtaggacaag	tggagaaaaa	5040
gccttgggag	agattagctc	ctgtctgctg	gtgcaggata	ttgtatcgga	tagagacaga	5100
ccgtggcatg	ccacctgact	ttcggcaatg	gcataatgt	aacaccaatg	ggaaacaaat	5160
cacagccgaa	ctgattcggg	agacaggcct	ggctatgaac	taaccgtttg	cttgccgttg	5220
caaaaaggga	aaaatcgatt	ggctgtgaag	ttatgaatag	attcgggaag	aattgat	5277

(2) INFORMATION FOR SEQ ID NO:988

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 875 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...875

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:988

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caccctctta atttataata tccgcgctgc cagatggaaa aacgaaggct ccgcagtcgg      60
gtattctgct ggagctgtcg ctctacatcg gtcagtgtgt agtcgggtcgg atatatatat      120
aggtattttc ccgggcattg ccggcagaga cagtagcagg taagctccca gcgaaacaag      180
agccatcggg ataagggtag tgccgtgatc caaaggatca cagctcttct gcgtgtgcga      240
ttcctttttt tctgtgggag gcggtatctgc tgtaggtcgt tttcttgctg ttttctgaac      300
catgccc aaa gataaagcat ttatcctgct ccggagtttc gtcaaactcg tacggtcctc      360
cgtaaactctc aagagtgcac cgcttcatac ggtgtaaaaa catgcgaggc gtatctttcc      420
tttgaacaac ttattgccct ccttcataac ataagacccc tctaaaatac gtgcaaaaaa      480
aattttcaac acgaagaaga atttagaatc attccaaata agcgtccgaa aggaaacggg      540
tttgaaatcg ggaagatgaa aaattagact tcgtgaagcg aaaatccata ttcaaaagat      600
cgaatcacga ttgatataata aaacgttttc gatttattat aaactgattt caataaatat      660
ataaatcgaa aacgtttttg atataatcgc agccctcaaa aagccttttc gtaagggtgat      720
aaaacagcga cccccccgga ttccttcttg aatcgggcgg gtgtcgtata tgtttggaga      780
cttaagcaga gctgcacctc tctatatcat cataggcgta tcagtcctc atcgaatact      840
gcgatgagag acgcttatat cagtcccaat gaatc                                875

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(2) INFORMATION FOR SEQ ID NO:989

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 610 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...610

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:989

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acgcttttca gttcgttcac atcgggtctct tcctgctcat aaccgaagcc tgtttgatgt      60
tcagttctac gccggacaaa ccgtatgaag agagcttctc ttgcgactgt ctatctgagc      120
cggagaaaacg gtagcaccga tcaatacact tctatatgct tccggttggt ctcttccagt      180
agctgggtcgc gtatgactgc gtattgggga tactgcccgt cacctctcgc acgtacttgt      240
gtgcgtttcc tgaagtagat tgttgctgaa gagctgtatg ctcagataga tactggagca      300
atcgtagata tggcaatgac cgtaatgatc cggcgcaact tctctctcgc tgtttattga      360
ggaagacttt gcgtgggaac ttcagcaaac gtctgcaagg aaggtagcca gtgcgataaa      420
tacagaattg atgatgaaga gtagaaagcc ccgaagaaat atgcaaaactg ccagtagcca      480
aggccgaaac ggcagtacag agaggaggca taagggccgt cgcatagacc acaccgggtt      540
tacattgccc ttgcttttgg tactgcccggc gacaatcccc gcagcaccac gaagaatgcg      600
atcagcacgt                                     610

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(2) INFORMATION FOR SEQ ID NO:990

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 922 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...922

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:990

ccagcgtagt	acgcagatgg	atgccgggta	cttcggttcg	gatacctttca	tcagttcgta	60
ggtctccgcc	ttggtaatgc	gcctgcgcat	ccgtccgaca	tcggatcgct	aatgtgctgc	120
aaagccatgt	cgaggtatgt	gcagacgtag	gccgctcacg	catcacaggc	aagagatcca	180
gaggaaactg	tgccggtaag	cataatgcag	tcgaagccac	tcgacccctt	tgatgtcgga	240
caaactgctg	tcagttctgc	cagacggtta	gcaccgtaca	ggtcgaggcc	gtagaggtaa	300
gatactgagc	aatcagttgg	aactcccag	tcccatgctt	tacagcatcc	gtacctcttc	360
gactaagtcc	tccatcgggc	gcgaccgatg	ccgccggtga	taatcggtat	ggcgcagtac	420
gaacagctgc	gatacgagcc	ccggatattt	tcagataggc	ataatgccgc	ggagtgggtca	480
gtttgcgcct	ttctctgcct	cggcataata	agacttcccc	aaatgagaaa	tgagttgctc	540
cagtgcgaatt	tgccgtagta	agcatccact	tcgggtatct	ccttcttcgg	tcttcccga	600
accgctcgct	caagcagccc	attacgtaca	ggctgccata	cgctccggcct	tcttcgcctc	660
caccatctcc	agaatggtat	tgacagctcc	tcctgtgcat	cgcctatgaa	tccgcaggta	720
ttcaccacca	cgatccgccg	cataccgaag	ccggatcggtg	atgcacggta	tagccgttgg	780
acagaactgg	cgcatcagca	cctcgctgtc	caccagattc	ttggagcacc	caacgtaatg	840
acgtctactc	tgtttcttct	cattcgccaa	agagagagtc	cagaattcct	tcttacggaa	900
gatctgcagg	tcgtctatgc	cc				922

(2) INFORMATION FOR SEQ ID NO:991

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 941 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...941

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:991

gggactcggc	tcccgaccgg	cgcggtttac	ccaaccgatc	cggcgagcag	attgcccact	60
accaaggcat	agggcggtac	atccctaata	accacggtcc	tgacacctacc	atggcataag	120
cccctatcgt	aataccacaa	agaatagggc	attggctccg	atggagacgc	cttcgtgcaa	180
atgagtgggg	cggtatcgga	ttttctttca	ataaaggcgc	gaggattgat	cacgttggta	240
aataccaact	cggtccgagg	aatacgtaat	cttcgcata	gacaccacta	tacaagaaac	300
gttggttctg	accttacagc	ctcgccccag	tcgtacctcc	ggcttataac	gacattctgc	360
ccgatgttgc	aattctctcc	gacctcggct	cccacatcaa	gtgagagaag	tgccatacgc	420

gtgtaccctg	accaagcaca	caccgtcttc	tactatcgct	gtgggatgga	tcataaagac	480
ctgctatcaa	tggcgatcaa	ctgttcggca	cgttctaccg	atgaacggaa	tgaggcatta	540
tctccatctc	gttcgtcaca	cagcgacagc	cgtggagtac	ggtggcatgt	tacgtcctcc	600
catcagttcg	ccgatagccg	acaaggactg	agccgtgggt	ttttggagag	gaacatgacc	660
acctgacgag	cctgtacgat	atcctgttcc	gactcttgct	tttcatctgc	tctatctgca	720
cctgaaatac	tctgcgactg	cctgctggat	gcactcgatg	gtgacttcct	ttttctccag	780
tctgcagctt	ggcggacaat	ccgtttggca	aagggtcaggt	cgatttcctt	accacaacca	840
ccgaattttg	gatcaaggat	acgagggtgc	cttccagttc	acaacattgt	cgcagacatt	900
tttcggcgat	aaagttcagc	accgattcgt	cagccggaca	c		941

(2) INFORMATION FOR SEQ ID NO:992

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1041 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1041

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:992

ggctcggtac	cccggcccga	tacaaattgg	aggcacgcga	tctgcctcgt	tccccgaagt	60
aaagagggat	ctggcattgc	ttttggacaa	ggctgtttct	ttgccgaaat	agaatcactg	120
gctcgtggct	gtgagaagaa	actgctggca	gggtggaact	attcgatgtg	tacgagggaa	180
agaacctgcc	tgccggaaga	agagttatgc	agtgcgttcc	ttcctgcgca	atgatgagaa	240
gacgctaacg	acaaacagat	agaggctatc	atggctaaga	tacggacgac	tctgagcaaa	300
agctcgggtg	gcaactccgc	tgacaatcaa	acgaaaatcg	acaaataaga	atcgacatat	360
cattatggga	cgagcatttg	aatatcgtaa	agaaggaaaa	tgaaacgctg	gggcaatatg	420
gcccgcgtct	tcaccaagtt	agaaaggaaa	tcaccatcgc	tgccaaagaa	ggcggccccg	480
acgtggagac	aatccgcgtc	tgcgatatcc	cgtgcagaca	gccaagaagg	agaacatgcg	540
aaggagaacg	tggaacgcgc	catcaaaaaa	gctacctcca	aagactatcg	gactacaaaag	600
agatgaacta	tgagggtat	ggtccttacg	gcacgcacac	ttcgtggaga	cagctacgga	660
caataccaca	cgtaccgtgg	ccaatgcgcg	agctacttca	acaaacatgg	cggatcgctc	720
ggtacttccg	gcagctggaa	ttcctcttcc	agcacaaatg	cgtatttcac	atcgtaaga	780
aagagatatg	gatctcgaaa	gccttgaact	cgaactgata	gactacggtg	tggcgaactg	840
gaagaggacg	aaaacgagat	cattctctac	ggtgactttt	cgagaactcc	aacatccaga	900
aatatctgga	agatgcaggc	tatgagatcg	ctcggccgaa	ttcgtccgca	tacccaacga	960
tacgaaaagag	gtaaccgccg	gcagcgcgaa	cagatcgaga	agctcatcga	gcgaatcgaa	1020
gaagacgaaa	cgtgcaaaac	g				1041

(2) INFORMATION FOR SEQ ID NO:993

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 699 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...699

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:993

gcggttgaaa	aacggctcga	aggtaaaggc	caacagcaga	cctgcgatga	tgtgagcagg	60
gttatgacga	gggactccaa	caggagcttg	cggatgaccc	cgaacggctt	ccgccgagca	120
ggcggcgaat	ggccgattcc	ttgccccgaa	accggcttgt	gcgacagtca	tattgacata	180
attgagcacg	gcgatacgag	gatgagcagg	acgatacccg	tcagcacttt	cacttttggtc	240
atattttcgc	gcgattctcc	agattggctt	ccacgacctt	gctatcgaag	tagcatccgg	300
cagagagacg	aagtgtactt	ctttgtggaa	accctgatga	taggccacat	aaacgcctcc	360
ttcttgaatg	tttcttcgag	gattcgggct	ttctctcaag	gtcggttccg	gctttgagca	420
gatagtaggc	cataaaactg	cattacccca	gcggaaggca	ttctcgccac	tcaaatcgga	480
cagaaaatgg	aattgaccac	aatatccacc	tttttgaact	ggctgttgga	cgggattcct	540
ccattacgcc	cgtgatcgta	tgaggaaaat	tgtagagaaa	tacggattac	ccacgggatc	600
ctgatcggcg	aagagcttgc	gagcaaaatc	ccgagagtga	cggctgactt	ccggtcgttg	660
agcacttgcg	aggggatgcc	attcgtagac	ggaaatcga			699

(2) INFORMATION FOR SEQ ID NO:994

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1842 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1842

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:994

gaacgaatcg	cgcagttcgt	cgttgatcgt	ctcgtacatc	caccatttgc	ctgacgctga	60
cgtttcagtc	ggaagaatcc	gttgtccgtc	gtaaaatgcg	gtactcgtcg	atcatatccc	120
aaatatacctt	gatgccgatg	gcataatgcc	tgaatagggtg	aggactcgcg	gcttccatcc	180
cgattcggcc	tgtgggatag	ccgaagagca	ttccgataat	gcgaagccgc	cagattggcc	240
ttgtcatatt	gtctccgtcc	gctttattga	cgatgatacc	atcgccatc	tccaaatccc	300
gcgcttgata	ccctgaagtt	catccccgt	accggccagt	tggtcagcag	gaagaagtcc	360
accatcgaat	gaacagcagt	ttcgctctgt	ccactcctac	cgtctctaca	aagatcgtgt	420
cgaatccggc	cgcttcacac	acacgatgg	ctcacgcgtc	ttgcgtgcc	cgccaccag	480
cgaaccggca	caggactggg	acgaataaag	gcattcttct	ctcgagagag	ctgctccatc	540
gggtcttatc	gccagaata	ctccctttgg	atctctcgct	gctgggggta	tggccagcac	600
ggcaagcttc	cgccccgtgt	tgatgagatg	cataccgaag	catcgatcga	agtactcttg	660
cccgtccggg	gtactccggg	aatgccatac	gcattggagcg	gccggcatga	ggcaggcact	720
gctctatgat	gtcttgccg	tatcctgatg	catgggcagg	agactttcca	cgagcgtgac	780
ggcaggctca	ggatggttat	atcacgggcc	aaaatgccgt	ccacatagtc	cttaccgtca	840
gcttctttcg	tcttgtccta	ttcaggtagg	gattgatgat	ggcatatttg	aaacgcctt	900
gttcaactttc	agtcctttat	agcaatcatc	atttcgggat	gatgaagtag	ttcgtccata	960
gttaatgttc	tgttttatcag	tctgcgggca	atctcgcttg	cagtaccgct	tggcagcagc	1020
tctacgggga	aagctacagt	tccgctttga	ccttgatacg	acgtagcgga	gcctgcggtc	1080
gttgcaaata	atggaaatat	cggcagctat	actctgccac	ccctcagctt	catcacctgc	1140
ggatccacag	cgatccgcaa	tagtgtgctt	ccgccggctt	tatctccgtc	cggtcgggta	1200
ggcagctcaa	agccggattg	cgtgtgtgac	gctatgcaat	cggagagggc	cggcaccgac	1260
gttgcgaaatc	tctacgcagc	ctttgtcgtc	tctccatcca	actgtcccat	gtccaaatag	1320

gtgtgagttc	cataacgcct	gtttgggctg	cagtgagggc	agggaaattg	tcaccagcgg	1380
caaggagacc	atgacggaat	caacggcttt	ttttcctgtt	tgggagaggt	tacctccaaa	1440
acgagaggct	cgctccttcat	ccccggaggc	tattgcgagg	tacggcaagc	gaaagattca	1500
gctctctggg	ctcacgagct	gcagccggaa	tgcccgatcg	tccagcgata	caaatagaag	1560
tagcgataga	cagcaacttg	caggctcggac	tcatccgtat	tgttcaccac	caaccgtcca	1620
ccccctcctc	ttcaggcatg	gaaatagggg	aaagcaggcg	agcattctca	cctgtagcgg	1680
ccctatcgcc	aagacatagg	catgcggtat	ggcacactga	gggtcgtaac	cgtgccgctt	1740
atactgagtt	ccagcgggtg	agatgcgcgt	tggagaaaac	ccgaatccgc	ttgacgaaa	1800
ctcctgatcg	accacaggat	cgaagaggac	gcggatctcc	gc		1842

(2) INFORMATION FOR SEQ ID NO:995

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3194 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...3194

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:995

gctcggaaacc	caagacggaa	gtgcaggatg	tccgtccggc	tttgggcaga	cagcggacta	60
catgcgctac	cgcgtatcgc	gacaagtggg	catagaatga	ggatgccgaa	tgagggtcatc	120
ggcatagcac	tttcggcacc	gctgttcggt	gggtgatcga	aaatatgatc	aaaaatgccg	180
tcgatgccat	gagcggaaa	gaaagatcac	gatcgaaact	aaggagaaa	gctcgtatgc	240
agtaaagata	ttaccgacac	gggcaaaagg	atccccaagg	ggaaaatgcg	cgattattcc	300
gtccgggcta	ttccacgaag	accagaggtt	ggggtttggg	ctttctcttg	caaagcgaat	360
catagagaaa	tatcacaaa	ggaaaataag	cgaaagcaat	cggagccggg	tattggcact	420
actttccgta	ttctgctgcc	gaacagaccg	atctgccata	agtatacgaa	cgaaatatgg	480
agccgaaccg	tccttttccg	ccccggagta	cggggccttg	attttagagt	atattatcga	540
cggattccgg	ccagagagtc	ggtgaaattc	ccaccgtcga	ggaactccgc	gtaacgacaa	600
gctcagagaa	tccaatcaag	aaatgatcgc	tctgaacaat	agcagttgct	cttaatatcc	660
gcatctcgca	gtatgcgtca	gttcgcgagg	aagataatcc	gcctcccttt	gcactcgcaa	720
gtctgcatct	gttgtcataa	atgatttaca	gcattattac	tacatttacg	gagcataaat	780
gtagcggccg	gtgtctttcc	caatagaaat	gcacggtgca	gcgttataaa	taatacaggt	840
tgaagtccgg	gcgtgccccat	cgtttcgact	tcttgctatt	caaattgaaa	aagtaaaaaa	900
atgacatata	atgaattaca	actggaattt	gagccgttta	ccgcagagga	acgttccctc	960
gggacaatat	tctgtcggga	ctaaggctcg	cgcccgtagt	ggggtgccta	ttggcacgca	1020
ggggaatagt	tccgtagagg	aaagctaaag	tttctttcgc	ccaagattgg	aggatctcac	1080
gatcccttcc	tgatgaagga	tatggacaag	gctgtagctc	gcctgaaagg	gcagtagggc	1140
gaaaggaaaa	aatcatgatt	tacggtgact	atgatgagac	ggtaccacgg	cagtggcact	1200
cgtctataag	tatttgcgcg	ccacggctgc	tccgaaaacc	aattggatta	ctacattccg	1260
gatcggtagc	atgaggttat	ggtatctctt	atcgaggaat	tgattttggt	cactctctcg	1320
gaagaaactg	ataactgtac	tcgactgtgg	tatcaaaagg	gtcgaaaagg	tgcatacgcc	1380
aagtcgcttg	acattgattt	tattatctgc	gaccatcaca	accggatgaa	acgctacctg	1440
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cggctgtgga	gtcgggttca	gtttatgcaa	gcctatgctc	ggagcaacaa	tttgcccga	1560
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ctcggcttgc	aggctataat	agatgtatgc	ggtctaagaa	gcgaaggata	gatatgaacg	1740
acatcgtctt	caagatcggg	cctcgatcaa	tgcttcaggt	cgtatgatga	atgggggtaa	1800
ggctgtggaa	ctatactctc	tcaggatgct	gtggaagctc	aaagccgaac	ggccaatata	1860
gagaatacaa	cgaccaacgc	cgtgagctcg	acaaggatgt	gacggaacag	gcatcgatat	1920
tttgggcgag	ctatccgatg	tggacaagaa	gatcctcggt	tctaccggcc	ggaatggcac	1980
aagggcgtta	tcggcatagt	ggccagcaga	tgaccgaacg	ctattcgcgc	ccgacgatcg	2040

tgatgactaa	gagcgggtgtt	tcatttcagg	ctcggctcga	tccgtaggag	ggttcgatgt	2100
gtacaaacca	tcgaacattg	caaggacttg	ctggtcaatt	tcggagggca	tcctttgcct	2160
ccggtctgac	gatcaaagaa	gagaatctgg	aaaccttccg	aaagagatta	cggactatgc	2220
cgaagaggct	gtatcgccgg	aactattggt	gccaaaatag	atgtagatgc	cgaatatatcc	2280
atcgaagagg	tcaattacaa	actctcgaca	acctcaagcg	gatggggcca	ttcggcccg	2340
aaaactccaa	gcggcttcta	tatcccgaca	actgtatgat	gccggtggta	gcagggctgt	2400
agaaaagcct	ccgaacacct	gaagatagat	gtgagagtgg	gatcggggca	cgccatccgg	2460
tgagtgggat	tgcgtttaat	caggccggtc	attgcatgg	atcaaaaacg	gctcatttcg	2520
tctttgctac	acgatagaag	agaacgaatc	aacggcaaca	aatcattgca	actattggtg	2580
cgcgatatta	agcccagaaa	gaatctgcta	ttaacggaaa	aacaagatga	aaaaaacgct	2640
cacgataatc	tgggaggcaa	ggtcttccac	atcgacgagg	atgcctataa	cctgcggagg	2700
agtatctgca	caatttagcc	tcacatttcg	atcgggagaa	ccatcggatt	gtaagacgat	2760
cgaggaattc	gaagcctact	tgtccgacat	gatgtgggtc	gtttgcatag	cgaacacgcc	2820
gtaataagta	tcggcctgat	tctgaagtca	tagaaaagat	caatacggga	gagcactttt	2880
cttccaatga	aacagtacga	ctgccggata	ttctgcaggg	gccggttaca	gtcagaagga	2940
agagaaactt	caggctatcg	atacatgtcc	ggggaggctc	cgaagcggag	ttttatcgcg	3000
acatggatca	tgccgttttg	tgtggcgtgt	gtagcggttt	gctgcatata	cgagatggaa	3060
tgtgaatgct	atccgtgtga	tagtcgtttg	atgacgattt	tggcttctcc	gctcttttgg	3120
atgatcatta	tcggtttttg	gccgtttgga	tgatagctcc	accggctata	actgcttctc	3180
agaaatggag	atgt					3194

(2) INFORMATION FOR SEQ ID NO:996

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1613 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1613

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:996

ggctcaagac	tttttctatg	acaagaaaat	gaagccgaag	ggcgacatgc	gcatattttc	60
atgtggtttt	atcaatttat	aaattctaac	ggaaaccaag	tctcgttcga	aacccacaa	120
aaatagtact	tatttaggtc	gtgacatcga	aaaacaatag	atttcatagt	tcgggataat	180
aatcataccc	ctgtagttcg	ccgaagggaa	gcagaaactc	tataaaaaag	aatgatagga	240
taaaatgata	agacccttag	gtctgccttg	tgcggagctc	atcccgccaa	gacagaccat	300
aagggtccgc	tcacaatata	ctccaattcc	tagcaaaaaga	atcgatcggt	tccgctgcgt	360
cggaaacaaa	attttcctcg	ggggattgaa	aggaaagaaa	cggatccttg	tggcagtaaa	420
gtcggattga	ccacaagtgc	atctctcccg	gcttttcttc	gaagccgcag	acaaagactt	480
tgcaggctct	tggctcacc	catacttccg	actccttccc	atccgcacag	aacggacagg	540
gatataaatg	ccgaaagctt	aacaaggttc	acagcagcgg	gactgctcgg	attttcacc	600
gattcccttt	taatcatcac	caccgatccc	aataggaaaa	ggcagctctg	aacaaagtcc	660
gcacaaaagat	aaaaaaataa	cacattcaga	tatagcagga	tgcataattc	acagggcaat	720
cgcatttcag	ccactacgta	catctaaagc	tcatgattgc	tacatccaat	tatcaaacaa	780
gtacaattaa	tgggaccttt	gcacaataag	caggcacttt	tgttcattca	tttatgtgtg	840
tcagacgacc	atttagtaca	ggtcagttac	cgccggcaac	attcgtttcc	cccttaaagg	900
ccaatatgaa	gtcctcaatc	cctcgtattc	aagaagaaac	tcgctcgaat	gaagccgcaa	960
aaccgattta	atgcgtcggc	ccggggcagc	ctgtcaggac	gatcgcgttt	gaaaattttt	1020
tagttttcac	aacgaagcgg	aatttggaa	gattctaaat	aagcacctga	aagggaacga	1080
ttttgatgtc	gaaaatatga	agaaacgaac	tttttcagg	caaaatagg	ttatgggaga	1140
caagataacg	atctatatac	aaactgttta	cgataatata	tagatcggtt	tcgatttgta	1200
tataaatcat	tttcaattta	tatatgatcg	aaactcattt	gtatataaat	cgaagaccga	1260
aaaaggccct	ttcgaagctg	aaataaaaaga	ggcaccgcga	cgattcgtgg	ccgaaccgtg	1320
cgggtgcctta	tgcctttgga	ggagtataag	aggagtattt	cctacttatt	cgcataggga	1380

tatatgctgt	ttgtccaaat	atcgagatgg	cgtggttaggt	ttgggcgcg	aaggatcggc	1440
cggaaagatc	gggggtataa	atgtgttcgg	gcacatgttc	tggtatagtc	tattatccat	1500
gtagttctat	tcaagcaatg	gctctcttgg	cagcgacatc	caacttccga	cagagagctt	1560
catcgggcac	aaatgtaaga	aaatattcag	tctcggggaga	tttgaaaaaa	tcg	*1613

(2) INFORMATION FOR SEQ ID NO:997

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3202 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...3202

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:997

ggctctgaca	ggagtacgga	agagttgctc	ttgagtacat	taggaatcaa	tgggtcagga	60
gtactttcaa	ttcattgata	aaatcggctg	ctgaatagcg	cctcgctcga	tgcgacgaag	120
cttgatttcc	cattggccgg	tcagctcgca	ctcttgagca	ggtcatagtc	gatcgctcgt	180
atcaaaagaca	tacccgagga	gtagctttga	gattcttctt	ctctttataa	atgtagttgc	240
gcttgagaga	gtctcaatga	tggctgctcg	cgtagacggc	cggccgatgc	catttctttg	300
agggcatcgc	ggagctcttc	gtccttgacc	gacttgccgg	ccgctccatg	gcacgcagga	360
gtgtagcttc	ggtatagaat	ttgggctggc	gttcgttttc	tcctgcacct	cgggggtgtg	420
tactccactt	tcgcccctcg	aaatattggc	agttttttct	cctcgctcct	gttctctcca	480
tcctcgctcg	ctgcggatcg	gtgaagacag	tgcgccagcc	gggctccagt	atctgtttcc	540
cgtgggtttg	aactctacct	tagctgcttg	tcccaagacc	gtggtctgct	gaatatgcag	600
tccggataga	aaacggctat	aaatcggcgg	gccaccaatc	gaatacacgt	cgctcatcct	660
ccgacatacc	atgggatggc	tgaccgtggg	aatgatggca	tgggtggtcag	tgatcttgct	720
attgtcgaat	accttttgct	tttttttagt	ttgctacttc	gaagtggagc	tgtgagcagg	780
gtatgtcgga	gagtccttgg	aggatattcg	gcactttttc	gaatacatcg	tcgtcagata	840
ggtggatatcc	acgcgcggat	aggtggtgat	cttcttctca	taagcgattg	gatggtgcgt	900
agcgtagcat	cgcccgctac	ggcaaacctc	tattgcattc	tacctgtagg	ccggtgaggt	960
cgaaaagtgc	aggcggcagc	cccgaacctt	cttcgtagcc	acggaggtaa	cagcaaatgg	1020
gctgccagca	cgacctccac	ttcccagacg	gcctcctcga	tcgaggaaaa	gcgtccctgg	1080
tggcattgaa	caccgtatcg	cggtagatgg	tcttcacctc	ccagtagctt	caggggtgaa	1140
gtgctcgatc	tcgtgctgtc	tcctgacaat	aagggcagag	tcggagtctg	tacacgtccg	1200
atggaaagta	cctgtcgggt	gccccgaagc	ggagcgtata	aagacgcgta	gcgttcatac	1260
ccaatagcca	gtcgtatagg	cacgagccag	tccggcctca	tatagggaat	gaaattcttc	1320
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gtcgccgcac	gggacatgtg	cagcccgttt	tctgcaatac	caacgctgga	tcagctctcc	1440
ctcctgtccg	gcataccgcg	agttcacgac	atatccgctt	catggacaag	cctttcgatg	1500
gtgccgaatt	gctcccggaa	ctatcgctat	cgatgagttt	gatgccaaat	cgcagtggta	1560
tcctcgggtga	gaactgatac	tccatcgctt	ccattcgggt	gcatagtcgt	gaggttcttg	1620
agggcacaga	gatgtccgaa	agtccatgtc	acctgataac	cgttgccctcc	atatagcctt	1680
tataggcttt	ggtggcaccg	agtacagcag	cgatccacgc	cccacactgg	gcttttcggc	1740
aatacagact	atcatggggt	tatcttgatt	cttaaaaaaca	aatgtacact	tttggtccatt	1800
accactgtg	cctgattgaa	actattaatc	ggccatttgc	ttttcacaga	tttgtcatta	1860
gattttttcac	ggacctttga	tttatttagc	tcttccccat	agtgctaaaa	agcaattcta	1920
tgcttcagag	ccagagccaa	cttcagagtt	ttcttgcccta	gtgtttttgg	atgtaaatag	1980
gttagctaaa	aacttcattc	ggattgcttg	aacttgggct	tcttcacaga	gttgatttaa	2040
gatttagctg	cataaacctat	atcgaactca	cgttataaga	ataacgcgca	gcaaggggga	2100
ggaaaggagg	aaggaaaaagg	agaaagagga	atagagagaa	aagcaaaatg	atttttgaga	2160
gagagaaaat	aaaaaaggag	agagcctcgg	attcgagact	ctctcttcac	ctttttttcc	2220
ggggaggagg	gtggagatcc	tatccccccc	tctcctcacg	cttcttaaaa	aacggcggcg	2280
tcctactctc	ccactgtgac	gcataccatc	ggcaccgttg	ggcttaactt	ctctgttcgg	2340

aatgggaaga	ggggatcccc	aacgttataa	ccacctgaat	acttcgaaaa	ggcaatcgac	2400
aatcgaaagg	ccaacaaata	attcctcaag	ctttgcggca	acaaaccaac	tataccgcat	2460
ccttcgggat	gcacaaaagt	ttcgggctat	tagtactgcc	ggcttaattg	ttaccaatca	2520
tacacctgca	gcctatcaag	gtcatagttt	taaccaccct	atztatggaa	atcttatctt	2580
gaggccggct	tcgtgctaga	tgctttcagc	acttatccct	accagacgtg	gatacccggc	2640
ggtgcactgg	cggtagaacc	ggtaaaccag	gggtctgtcc	aacacgggtc	tctcgactag	2700
tgtcagaccc	tcgcaaattt	cctgcgcccc	caacagatag	agacgaactg	tctcacgacg	2760
ttctgaaccc	agctcgcgtg	ccactttaat	ggggaacagc	ccaacccttg	ggaccttctc	2820
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tgggagtgat	caacctgttat	ccccggagtt	acctttaatc	ctttgagcga	tggcccttcc	2940
tgcggaacca	ccggatcact	atgctctagt	ttcctacctg	tgcgacttgt	tgtctcccag	3000
tcaagcacc	ttgtgccatt	acactctgcy	accggttaca	atcggcctga	gggtaccttt	3060
agaagcctcc	gttacgcttt	tggaggcacc	accccagtc	aactaccac	catacactgt	3120
ccttgacgc	cgcgagtagt	attccaaaca	tcaaaaagg	ccgtattttc	aacatcgact	3180
tccacaatac	ttggcggtag	cc				3202

(2) INFORMATION FOR SEQ ID NO:998

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1922 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1922

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:998

ggagaaatct	ccaaacaccg	gagagcaaaa	gtcgcaggac	tcgaaagtat	agcctacgaa	60
ttcgtcagaa	acggtcagtt	tggcacggcc	ttttgcacgc	gagcggccaa	tacacgacgg	120
ccatttgccg	ttgccatacg	agagcgaagc	catgcttggt	cagtctctta	cggttagagg	180
gttgatatgt	tcttttattg	ctcttatatt	gttttggttag	ttatctctct	ctacacttcg	240
gggtgaaata	tagagacttt	aatttgattc	gccaaagtct	ttcagttcat	tataagcaaa	300
tgaacgggta	gtcccatgac	attgtagaac	gaaccctcca	ctcctgaatg	gcgatgtagc	360
ctatccattc	ctgtatgccg	tacgaaccgg	cttgatcatag	gggcgatagc	gttcgagata	420
ataatcgatc	tccatcatcac	tagatgcgca	aagggttacca	gactggaaca	cgagaaagcc	480
cttgtctccc	ccggtggcta	atgcacacac	cggtcaccac	ctgatgcgta	cgcccgccta	540
cgtacgtagc	atccgagcgg	cctcttctct	gtcttgcggt	ttgccgagat	agtaccatca	600
atgataacca	ccgtatcggc	cgtaatcaac	aaagtacgtc	ctgcatcata	cctttcgatc	660
gataagcctc	ggctttcatt	cgagcagata	gagcggcacc	ttctcccgat	caagaccggc	720
aggataatct	tcggcatgtc	cggcatggcc	ttttgttcga	atcgaatata	aagaccggag	780
aggattcttt	tcttcgaggt	gattgcgata	cgagtacgat	cttatatttc	ttcgattgtc	840
cagcataaaa	caacaagatt	tttcgatcaa	agagacttcc	gtcgttacca	tccgaaccca	900
ttcccctgtg	cccagcggcc	ttgtgctttc	acgtttgctc	gatgacatcg	cggacgacgc	960
cctctcctcc	ccggcagtg	atatgtattt	ggccacctgt	ttgatctccg	gcaactgcac	1020
cgccggggca	cgggcaaagc	caccctctgc	atcaccggca	gatcgggtat	atcgctcccta	1080
tataaactat	ctcttcggct	ttcaaccggg	tctcctgcag	gaggtgtcga	gctgctccac	1140
cttgttggac	gaacgcatac	agacatgttt	gatgccagat	attctgcccg	tttggtctatg	1200
gccggactgt	atccgcctgt	gatgaggcca	gcaagaagcc	ttgcttgacg	gcataattgca	1260
tggcataacc	gtctttacat	tcatcgttcg	cataggctgg	ccttcggcat	ccatagccga	1320
aacgtatggc	tgatcactcc	gtccacatcg	aagacgaatc	cccgtatgga	ctcaggtcga	1380
atggaatact	actcatgaga	ttaaaatggg	gtttattggt	cttcgggtccg	tacatcttcc	1440
gaatgctatc	gctaagtatc	cgatagatct	ctgccaatcc	ggatatgggt	tgagcagacc	1500
gagatgtttt	tgcagagtgt	tgtgtcgtct	cttttggccg	gcccgggtctg	agcttcgggtg	1560
gcggacattc	ctgcaccttg	gccgcagtc	ctgcgataag	aggagccaga	gagcgtgcgg	1620
cagaccatgt	gcggccagca	tttgctcact	caaggcatag	agatgatcgt	gaaattgcag	1680

gcaaatacag	cagccaagtg	cagatagagt	cgctgtccga	tgtacagcgg	agaacgttcc	1740
tgctaataag	acgagcgcgc	gattcagtag	tcgtaccacg	gattcgtcgt	taccttctat	1800
atataatagg	atgaagaata	gtccacacga	cgttcgcggc	tgaatgtctg	aagaggatag	1860
aaaccccgat	ctgcgcgatga	taagggcgaa	gggtatccat	cggcataagg	gtcctctaga	1920
gt						1922

(2) INFORMATION FOR SEQ ID NO:999

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 799 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...799

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:999

agcacggaca	cacagccatc	tctttcttca	gtttgttctg	tcgcgattta	tgatggccat	60
caccacaata	aatcccggag	ggaaaagtag	caaaaagaac	atcccagcat	cgatattcgc	120
ctgcgaagga	attcatattc	ctccactccg	ttgctcgtgg	atattgcctg	cgatatgaag	180
tcagctgata	gagtagcagg	ccgaagcgag	gagcataaag	aagcaataga	atataaatat	240
ggtacccagc	tcactctgga	aacagcagac	cgatctcctc	cgtcaggctt	cacacatagg	300
atccgtccaa	tacctgctga	acggcaagaa	ctccctcgga	caaccttcgg	catagttccc	360
cgatcgaaaa	tgagggatca	tgcgatcatg	tagatacggc	tcagcagacc	atcgggcaag	420
taaccttcca	gaccatagcc	ctctcaaagc	gtacccgcgc	ctgatccagc	acgagtacga	480
gcaggaggcc	ttgttggtct	tttcattacc	gactcccat	tgacgtgcca	gcttcaagga	540
aaatcctcca	atggagcatc	accgatagac	ggaagagtaa	cgacggcaac	tcaacggcat	600
gactgctgcg	gatggctcgc	agccgtccgt	tcatactcc	tcctgtgcat	tgctgagcaa	660
gcctgcttcg	tccgtcacga	gtcgaggcta	tcggcaagtt	ggacgtagg	tacatcttcc	720
ggcttatata	cccgtgcgcg	gatacacatg	gatgcagcag	aaagaagaaa	aaggccgtta	780
gggaaaaggc	cacactgca					799

(2) INFORMATION FOR SEQ ID NO:1000

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2109 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2109

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1000

tccggaagta	gagtaaccgc	aaaatctgca	atagggttgaa	gaatgactgt	cccaaaatcc	60
atgttacaac	caaaccaatc	actaacaagg	aattgttggt	cgctttcgag	acagaggaaa	120
cagtaccatc	atgactaaag	cactcggtga	aagagtgcgg	agaaagcgat	acagatataa	180
aaatacaaat	atgttttagac	aaaaacaatg	ggaatgacgc	aaatatgatg	cccatggcca	240
catatgtcgc	atggaattca	tcggtttcgaa	atatacctctg	tatatgagga	agaagcgatg	300
atagaaaaga	tgcaatcttt	ggacatcttt	ctcatcccga	tgacatcagg	agaatgggtca	360
caaaggatac	caatataagc	catgtatgaa	aaccaagttc	aaagaatgaa	aggcttttatt	420
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caaccgggtg	acagaaactt	gctgctatac	gtgaatcgga	accgataccg	agacgaacca	1260
tcgaaacatc	tgctccaccc	gttcgcacaa	gttggtccaca	tcatcataa	agctgatccg	1320
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agttcttcgg	cacaaaggta	agataaaaaag	agaagcctta	tcgagagaaa	gtcggctatt	2040
tccccgtcct	gtagcaggta	tagtgcctac	taccggaagg	acatgagata	caataaccct	2100
gcgtatatatt						2109

(2) INFORMATION FOR SEQ ID NO:1001

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4835 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...4835

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1001

acttccatat	ctgcaagcgt	cttgagacac	cattgccgta	gtcgttatcg	tgggtgcacg	60
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gaggtaacca	atccgctctt	tttggtgaaa	cgaatcgac	tttcgacgaa	acgaccttca	180
attcatctcc	ttccgtctcg	tgtgcaatgt	agggcctgta	gcacggtagg	cagttctctc	240
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cccgtctacg	ggtacaataa	tgtccgatga	agctgaggat	cgatatctaa	gccgatgacc	420
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cgtcgggcag	gaacaggcaa	cagaccggtg	tatactgggtg	gaagaccgtg	ataagctgca	4740
agtgtctaac	ctgtgaagca	gcatggctcc	cgttttcttg	cagatgctgc	cttggtctga	4800
gtgtactggg	atcgcccatg	ttttccgagc	gttgg			4835

(2) INFORMATION FOR SEQ ID NO:1002

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1358 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1358

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1002

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cccttgagga	gctacttgca	cgagctctca	aggggggtta	tgccttatcc	tacggatgag	180
gacataatta	tccccgcgtt	ctgtataaat	taaaggcgat	gctttcaaga	atgttttgag	240
tatggtcttg	gcaagtcccc	ggtatcgaca	tcgtccgcca	tgaaaccacc	gccgatactg	300
ccaaagggtg	gttcgatggt	gctccgtatc	ggaccgattg	cttgtttcct	tgcttctctt	360
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tagtgataac	gctttttgtt	gtaaaccctc	cgggcttttc	atccgtccct	ttacgctgac	660
ggacaacctg	tttttgataa	tcctccctgc	ctctttttcc	tcctcgctcc	gattgtcttc	720
tctgtcgtct	gcgactcaat	cgtaatgctt	ccgttggggt	tatgcggcgt	ctccacaagg	780
cttgatcgac	aagcaccctt	tccttgaccg	aaatgtgatg	gcgggaaagt	tgttgttaaa	840
ctgcgccaat	agttttgtcca	tgagaccctc	ctctgtcagt	gcgaacgaaa	tcgactgatg	900
gtactgtggt	cgggagaaac	ctcttccatc	tcagccctca	gaatcgggaa	aagggtgattg	960
aatcattgat	gcgctcctcc	aagcacatc	actgaggttg	taccatgtct	ccaaaagcaa	1020
catcttgaaa	agagaatcac	gtcataagcc	ggggcgccga	tggcattttg	tcgcttgggt	1080
atttcttggt	gatcagcgtc	ctgatcggac	gccaatcgat	aagcctgcaa	cctgattgag	1140
gaagtcgttt	tgtgcttttg	gataacgctt	tgaaagagtg	cgtctgcaaa	tgttacatgc	1200
tcacgggtat	tcttggtattg	gtatgcatgg	gaggaatatt	atgctgtttt	taataactcaa	1260
atatacaaaa	taacccttat	tatacaatga	attaacaaac	aaaatatacg	ccaatcgccg	1320
tgcaagggtct	ccatataggc	tttgattttg	ttgattgt			1358

(2) INFORMATION FOR SEQ ID NO:1003

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1690 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1690

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1003

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aggcctcgtc aaggagggtat aaaataaaaag gcaatggctc agagttagta atagggcatt      60
acgacctgct tctctgaaga caaataagga aacagactat caatgaaaaa actgatatta      120
tcggctcttg tgctgggtgg agcaatgctt tcacggcaca agcccaaaat aaagcggcag      180
agcccgccga agagttttcc tcgaaggagg agcgatgttt atccgccaaa attatgtggg      240
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attattatag tatcatcgcg gactatctat tgggagcgga tcagattacg tcctcagcgc      360
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ctctattcaa tgccgaacgt tacgatatgg ctttggaggc cttccagagt atgtatcccc     1680
atccggtatt

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(2) INFORMATION FOR SEQ ID NO:1004

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 914 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...914

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1004

```

cgacaccgaa atgatctttt cggaagagct tctctccgtt gataacagga ggctgcccg      60
aatctccatc cccttttgtc cgggaatcag gcgttggtgg acaaaggagt ggccattacg     120

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acgacacaga	cgagtaaaaa	cagacactct	tcataccat	cggagtttca	ggttatcgat	180
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cgctctaaag	cgttacttcc	agctgcttgt	cttcggggcag	ggagaactgc	tccacgcaaa	300
gaccgggtccg	ttcggacgtc	ttccccctga	tccatgccac	ctgtggcagg	ctcgaagcgg	360
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tcttggcata	cttcacattg	taggagtaaa	atgaaccgtc	ttcacaaatg	accacaggtt	840
ggtctncgtt	tcaaaattcc	gtacggcagc	cttgacacgc	agacgttttc	ggcatcttcc	900
gcttttccgg	tatc					914

(2) INFORMATION FOR SEQ ID NO:1005

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1008 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1008

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1005

cggatgacga	atttacagta	gatgtacaca	tcgctttccc	cagcaaggtc	ttagcaatca	60
attcgcttct	ttggaacat	tgctcgattt	cgaagagcga	ttgcagggtc	tcgcaccttt	120
gttttcgtac	gggaggtgca	gatgctttgg	aggccaatct	gatcaaaggc	ggcgatttgg	180
acaatgcttt	ggtgattacg	acgagccatt	ggcacaagat	cgactcgatg	cccttagtga	240
tatgagggag	tggagcgga	gcaggtcaat	gaattggggg	acatcaacaa	caagctctaa	300
tctacgacaa	tgaaccggca	cgccacaagc	tcctcgacgt	attggcgatc	tggctttgat	360
cggaataat	attcgcgagc	gcattattgc	cactgtccgg	ggcacagcat	caacaacaag	420
atggcgcgcc	tgattcgcaa	aaaatcaaac	agaacgaagc	acaggcccct	gtctacaatc	480
cgaacaaaga	ccgatcatgg	acatcaatcg	gatcaaagag	cttctacccc	accgctatcg	540
ttcctattgg	tcgataagat	catcgaagta	gggcccggact	atatagtcca	gtaaagagcg	600
tttccggcaa	cgaaccattt	ttccccgggt	acttcccggg	gagcctgtga	tgccggggagt	660
cctgcaagta	gaggcaatgg	cgcaggggga	gggctcttgg	tactcaatac	cctgaccgag	720
ccttcgagct	actcccatac	ttccttatga	tcgacaaaagt	gaaattccgc	cgtaaagtgg	780
taccggcgac	actttggtgt	tcaagctcag	aatgatttcc	gagatacgca	gagagtgcgt	840
aatatgcgcg	gcttagcttt	cgtaggagag	cagttagcct	gtaagctgaa	tttatggcac	900
agataatcca	gaataaagaa	tgatgtcaga	gcaaaaatca	gtccgttggc	atgggtggat	960
ccgcatgccg	aagataggaa	taggtgttga	gataggtccc	attgccgt		1008

(2) INFORMATION FOR SEQ ID NO:1006

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1395 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1395

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1006

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ccttgcgtag cgtagagtcc gtatgggtcc gttggaataa atatatctgt gtttgagggtc      60
atctggggcga ttgttttggg gggtagcaga gagcaatcga tatagggata tgccccctct      120
cgcagcaciaa tctgtctaat gaggtgacga gagactgata catctgagta tgattgttgc      180
ggagtccgatg gctttctcga tgagaatcag gccgtagtgt gcgcagggtg gtggctcaat      240
aaacttccac tatctagctc ctctagattt agctcgtctt cgctctcgat atcactacga      300
gcttgccatg gctccccatg gtaacgaagt cgatcgaggg agcatggact ctgggtttgtc      360
tacatcaaat agatcaatgg tttctcgcca tgttctagta ttgcaggagg agtgatgac      420
agtacccttt tgttgcgacc acatcttcgg gcatagatag gaagtgcttg acgagtaatg      480
tgcccactac gttttgccaa gtcccagac atccgagagc ataaatcctc catgttcctc      540
atgatgctat agcactgctt gaccgcgtct agctgggtact cgaaggcacg aaagtgctag      600
gtaggtaacc cgtaggagtc tctgtgagat ctttgtcact agagagctga acttgtagt      660
tagtaacttg atatacagtt cgtatgagat agtgattgct cctgcatctc ttgtttggca      720
gatttcatgg tctccgagca ataggtgcag tcttaataac ttgctctaga aactcttggc      780
tccatcttcg gctatagtcc atttttcatc aaaccaatga ctatgtccct tggagcagat      840
cccttttgag gtttagcagt tactactcga gaatcactct cggataattc aactccgcac      900
tccctattaa ccctcggtt gtaaagttag actgccgata atccctagag agtcgtctac      960
acccgagcaa atataacact ggagtgtagg aactcaatct caccctgagc atttcgtaga      1020
taaatacgtt ttgtattttg ctgactcgc agtgcttgag caatagtgtg atgacttgat      1080
atactcctca tggagctcta gattgtgtat atcagtacga ataaaatgtg aggaaaagat      1140
gcgtcttgat acttcggatt tttgagtaaa gaggagatac atacggatcc ttacctatga      1200
ggatctgcaa catagtctcc tctcttctag aaaggcagat agttccttta tcacaagtgc      1260
catacctggg acatccaata tcccgtggct attcgaactc gattgaccca atccaatcta      1320
aaaattgttt cagacaggaa ctcatagaaa gttcgggcga agaattatca ataagggatt      1380
gcgtaatagc atagt

```

(2) INFORMATION FOR SEQ ID NO:1007

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2792 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2792

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1007

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gtacctggca ctgtatggta ggcaatgccaa aaagatggcg gtcggacgat tgcagatgga      60
gattccttct ccgcaaggag gtagcatctt attgacagtt ctcacgatcc tgcggcagat      120
ggatgcattc gtctcagctg ggaaaatatt attacacctt tggcgaaatc cttgaaatgg      180
ccggcatcct cctatcccc cctatctcaa tcgggatacc gaagaggaag acttggaac      240
ctaccaaccg tctatgccaa aaatctgggt tcgggtggcg cacctacggc cgggtgcatt      300
tcacggagga ggagttcgaa cggctgagag cacagggtac tccgttgtcg atgttaccct      360

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gcatgtcgga	gccggcactt	tccgtcccgt	caaagcgaga	ctatcgggtga	acaccggatg	420
caccgtgaac	tgatagtcac	tagcgctcat	cgctggaagc	cctgcgtgat	tggcaaggca	480
gcatcgttgc	gttgggacga	cctccgtacg	gacgctcgaa	agtctctatt	ggctggggaa	540
agcctctcct	ccgcttcgca	tacatcgcaa	gaatccttaa	aagtcaatag	tgggaagcct	600
atgagaatga	agatgtggcc	ctgtctcgta	gtgagacatc	cgcataatac	tcgattggat	660
ggacgagcaa	ggagtcgaaa	cgctgatttt	ccgaccgaga	ttctgattgc	tccgggctat	720
cgctatcgga	tggtcatgcc	atgattacca	attttcatca	accgcgcagt	acctcttgc	780
tgctgtctcg	gcttttatcg	gagagaattg	gaaggctggt	taccaccatg	ccccgaatcg	840
ggctatcgct	tcctgagcta	tggcgatggt	tcattgctga	tccctaaagg	cgatttctca	900
atctttcaaa	ggctatttcc	gcgctgtttc	tgaccatgcg	cggatatata	gcatcccttc	960
cggcctgaac	atcgaccttt	ttctttgcaa	tatctccaat	aaaacaggaa	gagagtgtgt	1020
cgaaatcgct	cgaaatagcg	atttattgac	acactctctt	ctttttgggt	gcggctggga	1080
gactcgaaact	cgcacgccgt	gaagcaccag	atcctaagtc	tgacgtgcta	ccaattacac	1140
cacagccgca	taccgcacct	gctcgacagg	cttagcagca	caaataatac	cgaatctttg	1200
gattatgttc	cagtatgttt	ttattgattc	tctaactgta	gcaattcaaa	aggaaaaaag	1260
ccgcggaaca	gatgtttccc	tttttattct	ttccaaaaat	agtcactatc	gagctttttc	1320
aaccataagt	ctgttggtga	gtgcatccaa	gggtgtaatc	gatcattaat	tggttagttg	1380
ttccccatca	atcaatacaa	ttttagtctc	attcctgggt	gataagttaa	tgcttccttt	1440
gtaaaatttg	aagttgttat	aaagatccct	ttttggcacc	ttgtccagcg	agtgtctcaa	1500
caaacttttg	aagctcaggc	ttcctaccac	attcccaggc	ctccagcgct	tggcttggat	1560
ataaataaat	caagtcccag	tttatcttct	tttattgttc	cgtaatttcc	ctcgtctcac	1620
ttttgcctaa	tgctttaccg	gcacccctga	tagaacctcc	atatccattt	tgactaataa	1680
ttcgacaaca	agcctctcaa	aaaaagcagg	tgaaagtcaa	tgactttatt	aagtaattcg	1740
gaagccaatg	attttctgat	tcttgatatg	ctttgtcaag	gacctcttca	ggtgtttgtt	1800
cgtgtatttt	ttcgttatgg	attcttcttc	tgtttcgccg	tcatttcgat	aaccgttctg	1860
aattctataa	acgccggaaa	ccgtcttagg	tattttgtgt	ctatttttgg	ggattcttcg	1920
aaagtatctc	tctgccaaag	tcagaaatta	taagaatcgc	cgtttaggcg	aatcaagaag	1980
gccagccttc	tttaggtatg	ttcttgcccg	ccaacgcgat	tgtcaaaaac	agctttggag	2040
ccacttgcca	agagtccgc	gttcttcgtc	cgtgacctca	aattcggctg	ccaaatgttc	2100
gataatactc	tgtatttggtg	ctcttggtcca	tctgaaacac	atttcagcaa	tggaagatca	2160
gggtttggaa	atctggtatc	atatttctat	tgttttctcc	attataaaaac	ataatttttc	2220
tcttgacca	tgagcaactc	gaaatagtga	agttgtttga	ctttgcgaat	atactttatt	2280
tggagatggt	atacatcttt	ttggtgtctt	gtggactata	catgcgttgg	gtgagtaatc	2340
atttataaag	tcgactatta	ggagttcgga	atctcttcc	gtcctgaaac	tctatatact	2400
ttaaaagcaa	aatatagacc	tttatcagta	ttgatggaga	atccaaaaca	acacgaaaaa	2460
agttttcaac	aacgaagatg	agtttggaat	cattccaaaa	agaacctaaa	tacatctcaa	2520
ttttggaatc	aaaaagggtg	gaaaaggagt	ttttcaggta	gaaacatgac	ttttagaaga	2580
gaagataacg	atctataaca	aacggtttac	gataaatata	tagttcgttt	gcgatttgta	2640
tataaacgtt	ttcaatttat	acatagatcg	aaactcattt	ctatataaat	cgcagctgaa	2700
aaaggtcggt	ttgggcagtg	ataaaacaaa	ggcaccacc	aaatctacag	ggaactcggg	2760
gggtgcctta	tatgtttgag	gagaggggtac	cg			2792

(2) INFORMATION FOR SEQ ID NO:1008

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 742 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...742

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1008

cgaatcgaga	aggtgagttt	gaacttaggg	gtcccccccg	taagcacagg	gtttggggaa	60
tgacccatga	tgcgaacggt	ctccctttcg	aaataccttc	tctttcagtc	gtttcaacag	120

ccagggagat	atagctacca	cttattaata	gcgaatagcg	aggcaacttt	gaatgaatgg	180
tgcgactatg	cacaccgggc	ggcatcgtga	gggtagaagg	tcgtttttgg	aaaatgactt	240
acaactacca	acctacaatg	cagtctgcac	ccggattaca	ttcgaaaatc	aagaatagaa	300
ggaacgatcg	tcttgatacc	caagcccaaa	gtctcgtgc	ctctgtgtcg	gaatcgggtg	360
cttgcatccg	aaccgaagcc	gggagggaa	tttcctttgc	gaagaagacg	acacctttgt	420
gtctcacgat	ggtaacgaag	tacgataggc	ggtaaaccct	tcttgctcaa	taccaacgta	480
aagattgtgg	ggacgtatct	caaaagtatg	ccgtgggggt	aggagaaatt	cgattcctga	540
gatttgtgcc	caaacagtat	cacaacaaaa	atgaacacaa	gatgaaacaa	caatacttgg	600
catacagctg	tcacaatgga	caaagtgttt	tctttcatct	tcctgattgc	aggatgtaca	660
ggagcattat	cggggcagtc	tccatccaat	cgagaggata	cgcgacaacc	ggcatcttag	720
agcctgtatg	ctgccgacac	ag				742

(2) INFORMATION FOR SEQ ID NO:1009

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 753 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc feature
 - (B) LOCATION 1...753

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1009

ggggacgatg	tcgtcgaatg	tatagttgcc	gaagaaaaca	atggtgaaac	tcgctgactt	60
ttggcatcga	agtccgagaa	catggccatc	acattgttga	atagctcggc	ttcagaccgg	120
gattgccttc	cgtcacgaat	agcggatcgt	gatgtcctga	acgggagcga	tctgattgat	180
ggatggttgt	gtcgtggtcc	tcggtagtcc	actcggaggt	tggtagtcct	gctcggtttg	240
tagttattcg	gagcatcggg	gagagattga	cacgattgaa	agccagtttg	tcctctctac	300
tccggctacg	ctccgatagc	tgacagttct	gttgggatcc	acatgaatcc	tacgggtgtag	360
tcccacgttt	tggcaatctt	cttgaggttg	agccgatgcg	atactgggtg	aactcgttac	420
tgtaggagag	tccgtactga	cgtctaatat	ggagtattgc	ccgtcatcgc	ccagtcggta	480
cacctcacga	ccgaattgcg	acgggagaaa	cgtctgttca	gaatcgcttg	tcggaagtat	540
ttttacccaa	cggttccaca	tacgagaggc	gaagccgata	ttgcagggtg	agttgtcggt	600
gaattgcttt	tgattcgtct	ccacgctttg	gagcacacct	gatatatgcc	atctccgtct	660
tcgtcggtea	gaccgccact	gacggagcac	tgatcgtaac	gccttcgtcg	ttgagcttgt	720
gactgatata	caatttcctg	tcagtctgaa	ggt			753

(2) INFORMATION FOR SEQ ID NO:1010

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 3362 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...3362

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1010

gaaggatggg	atcttcgggc	ctcggctact	acgatttgct	catcggtatg	acctgaccgt	60
ctttccctcc	tactatgaac	cgtgggatat	acaccgctga	aagcatcgct	ttcgggtattc	120
cgacggtgac	gaccgacctt	tcgggctcgg	cctttgggct	atgcaggagc	gcggtagtcg	180
gaacgacttc	agtacggcgt	agccgtcatc	aagcgtaccg	acgacaatta	tgcagaagcc	240
gtacagccat	cgctgacctg	ctatatcggt	ggccggccga	aagtacagac	agaaagcctg	300
ccggctggca	gccatgcaaa	cggcatccca	tgcagagtgg	cgttgtttta	caaccgggat	360
gaagaagcat	actctgaatt	gctcagtcga	gatgaaaaca	accgataatg	aaaaaaacgc	420
atctttgtag	tccattccac	gacaaacagc	tattataaaa	caatgatatt	gaacatactg	480
cttctaatta	cggattggct	ttagtcggtg	gcggagccaa	ttttctcacc	gatggcgcac	540
ctccatagcc	aagcgatttc	gactatcgga	tttggtcatc	ggccttacgt	actggccttc	600
ggcacatcgg	ctcccgaact	caccgtcagt	ctgatggagc	cctgaaagga	agtggccgata	660
tagctatcgg	caacgtcatc	gggagcatat	ctttaacatt	ctggccatcg	ttggcattac	720
ggctctgatc	atgccctgac	catgtcgaac	agtacgattc	gtatcgaaat	ccctctaacc	780
attcctcctc	cgcggtcttg	tttttcatgg	ccaacgaccg	cctcttcgac	atgccggaga	840
gaatgtgatc	accggtaccg	aagggttcgt	attactggct	ttttcctgat	atttctattc	900
tacactttca	atatgtccaa	aggggaagaa	tccccgggca	agtgaggcag	tttgccctac	960
ccctatccat	aataatggta	tagggcggtct	ggtagctctc	gtcttcgggg	gcgatctggt	1020
cgtggacaag	cagctatgct	tgcgggacgc	atgggagtaa	gcgaatcggg	tgtcgccaca	1080
ccatcgtagc	aggaggaact	tccttgcccc	aattggtcac	caccttatgg	ctggcatcaa	1140
agaagcgccc	gggcatggcc	atcggcaata	tcgtagtagc	aacctcttca	acatcctgct	1200
catcctcgga	gtcagttcgt	ccatcgcccc	atacggatcc	aaggcattac	ggtcgtggac	1260
tatgggattt	tcatctatcg	gcaatcctgc	tctacgtttt	cgcccttttc	ttcggagaca	1320
aaagatcaaa	cgcttcgaag	gcagcatcct	cttatcgctc	ttcatatgct	atcgggtctat	1380
ttggctcatga	ccgcctaaag	aaagccatac	ggggaaaaat	ggcaagaaaa	ggctcgacgc	1440
cattcgccgg	catattctgc	ggagcgaaat	tcacaccaag	aggaactgca	aacagccttg	1500
ctgtccgaag	acattcccga	tcgcaggcca	cactttcacg	cgatctggaa	atcctcgcca	1560
tagaaaaacg	gcctcgccct	cagggaaaaa	agtgtacatc	ctgcctcgag	acaatcgcca	1620
ccctcctctc	gcggtgaact	tcgtatcgga	gcaccgaag	ggtttacgga	ccggtcgata	1680
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atcgggcaga	aagaaccaca	cgtcaggcct	tactctgcgc	cattgctccg	gccattccc	1860
aatcctccgc	tgaaaaccga	cacacctcct	ctcggcaaac	cttaccaaac	tcctacatcg	1920
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tcactacaat	caaacttaac	gggagcattt	tgaggcggtt	gtcccctgag	gtctattggt	2100
taatttctct	atgcagcaat	atttttacat	atctttgtcg	cgtttcagtt	gaacatttca	2160
aagaacacat	tccgacacct	ttggacatta	catacttcta	ctatgtcctc	taaacgggat	2220
acaatctcaa	tccaattagc	ctcctcgtct	acgatgttac	ttataaatca	aagtcattag	2280
caatacaaaa	aaatactatg	atcacctttt	ttcaaaatta	cgcaactcgg	attgcagtct	2340
tcggcagaat	gctctaacac	ctatgtccac	cgccgtgctga	gcccgcagta	tctgctgttt	2400
tcctggccct	tttacagctt	attgtcaatg	aatcctatcg	ccgagtattg	tctcttgga	2460
tatggagggt	cgatttgcgg	atattctgat	tgccccgatg	tttggagctt	ggtcgtttat	2520
ttattacttg	cagccatccc	gagccgtcgt	tatatcgagg	cattatgtgg	cccgtgatcc	2580
tgatcgcaac	gcttatgacg	tagtcgagat	gtacctgctc	aggtgctacg	ggactgtttt	2640
tatccctata	tagctactgc	atttcttgct	actacatcag	ccgaggccag	tgcattcggc	2700
gagaggcttt	ctcttgagc	gatattggct	atgtcgcagg	ttggatgcga	tcgtttggct	2760
tgtgagtcta	accctcggtc	ggctactaca	tctctcccaa	gcagacctaa	atttctcttt	2820
cctctactgc	ttctgtttct	tacccaatac	tctatgcagc	agtttggcac	tatcccaaag	2880
ctcttgatca	gtctccgaag	atagaggcta	tgctttctcc	tatccgacag	ctgcaccttg	2940
gagagggttg	tatggagcat	ctcgcaaagc	ttgatggaag	gcaaagagac	aatgcccttt	3000
tcgatcgcat	taactccagt	acaaagagag	atatggttcc	aaagtctccc	ctaaagcgcc	3060
acacacggta	gtgctcgttc	tgggtgatca	gcccgcacctg	attatatgca	tagctatggg	3120
tatcctctgg	agaatacccc	cgattggata	gtctgcttgc	atccggtgct	gctgtacaat	3180
tcgacatgtg	gtcagtgcca	agcctaatac	tcaaggttcg	attgcagcga	tgattctatt	3240
ggagaaaagcc	gtgcaggagg	aaaatgggat	gacgatccta	tgcgataccg	ctactccgct	3300
ccgccgggta	ctataccttc	tggctgagtg	ctaggaaaaa	ctgggctttg	cagtgcaaaa	3362
tg						

(2) INFORMATION FOR SEQ ID NO:1011

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 781 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...781

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1011

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gggctgatgg atctgaggct gaaagccaa tgcgaccgag cagctcacia gctattgatc      60
ccgaagccaa acgagtagtg ctggggcggt ggcaactatc gataccgaca tcgcatactt      120
cagtgcagat acgacggcag ccgatacact cagaaagagc cattcgactg gcaattcgag      180
ttggacaggc tggatcgaag aatatatccg ctgaagtccg gatgccactt gacagtgtac      240
tcctcagaca ttcgtcggaa aggcggcaat agcgaagacc aaaatggata ttgcgacatg      300
ctctatcagg tcggcatggc gcagttggac cggactgttt tgtttacgat acggacgagg      360
gggaagcttc gcccacctct ttcgactatc gcacattgct ttgaacgatg ttccctcca      420
agccaaagat atttgtttcc agacgggtgat atggagcttc agttgggtcaa cggatcccta      480
cgggagcgcg tcggttcgaa ctacagcggt tgtccgggag gtataggatg gatcggttcg      540
tttccttctg acagaccttt cccttgccac cgggcacagc catatcaagg agaagtccga      600
ctaccatgga gtatcttcga aaaagatccg acagccagat caatctctct atggatgctt      660
cgatcggatt ggaggatgta aactattggc cggcgataat ttccaactac cctnacgcag      720
gttagtgctg tatcccgga tccgggtggat atagtgtatc atgcacagga acactcgatg      780
a

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(2) INFORMATION FOR SEQ ID NO:1012

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1926 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1926

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1012

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gtcttcgcgg acaaaggata tgcttgccgg gaaaatcggt cctacctgca acccatcacc      60
ttcaagacgg catcatgcac aaggcacaac gcaacaggca ttgaccgagg aagagaagca      120
aggaaacaaa gcaatcggtc cgatacgagc accatcgaac gcaccttttg cagtattcgg      180
cgggtggtttc atggcgacga tgtcgatacc ggggacttgc caagacccat actcaaaaca      240
ttcttaaaagc atcgccctta atttatacac aacgcggggg ataattatgt cctctccgta      300
ggataaggca taacccccct tgaggagctc gtgcaagtag ctctcaaggg ggatttaca      360
ctactttcac tccttactgc caccctttt cctccccccg ttttatgtga agaattcctc      420
ttccctccat ttcccttatt tcaaaggctc cataaaaacg ctatcaaatt aggattatgt      480
cctattttcta ccgaaactat aaggctctat tggaccttgg tcgaagaatc aaattcgaat      540

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aacgaaaact	aactctctgc	ggaatttggc	tttttaaggc	tctgctgttg	cgaagaaaact	600
aatccttttc	aattgggattg	tatgggtgtca	ctgatcgaga	attttcccat	caatctcaaa	660
atatagattt	tgataacttt	tcttgattca	tgccaagatt	tatctctttc	ataaaggaat	720
tcataaggcg	tattcctcga	tatatgggat	cataattttt	tatcaacaag	actgccattg	780
caacaaaaca	tactcgttat	tagagtctcg	aatctccatg	atcaagccgg	gtagcctcaa	840
agacatatgg	ccccatagga	taggaatatc	ttctgaatac	cagcctgata	aaatccgtcc	900
tctataagga	ccatgtagct	tttttacatt	catatccttt	gatattcctt	ttcttcattc	960
agtgaaatth	cccagtccaa	ccgtggggct	atttcttcat	aagtgaataa	ttcaccgaat	1020
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ataaattttac	tcatttttga	tcctactgta	gcagtgttaa	ccctctatta	gggagatttt	1260
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ttaatttttc	taccaggag	ggatttgaag	atgttttggg	ttctaattgtc	tgaggagctt	1560
ctgctgtcaa	ttttgactca	ctttaaaaca	tggaaaatta	gaagcgcaga	atctcttgct	1620
gcttgcataa	cttgactcat	tacattgttg	taatctgtct	catctcctgt	attttcaaga	1680
taaaatcaca	actcctgccg	tccgtacaaa	aaaccttaca	tgggtttctc	ctccgttagg	1740
cgttgaacaa	gtgactgcag	taactcggct	gcatttgcga	tagaaaacgc	tcctgccaat	1800
aagactgtca	aaagaatttt	ctcattttct	tgttttttta	agattataca	tattttaaac	1860
tttcgcaagc	aaatatcggt	aattcttttg	atatatacaa	acatttttga	atttgcacat	1920
tcacac						1926

(2) INFORMATION FOR SEQ ID NO:1013

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4312 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...4312

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1013

cgaggagggtta	tggcttgccg	catcagtcga	tcgaagaaag	cacagtcctcc	cgtatcacga	60
attgctgctg	catcagcatc	aggagagctga	cgatgatatg	gcgataatcg	catatgcggt	120
catcgtatcc	gcattgcttt	ccctgtaaaag	agaaggccgt	acaatatgaa	caagaaggaa	180
aagatgaaaag	tactgcaagg	cgtttgagc	gcaagatgag	cttgatatgc	agtgcctatca	240
cctcgtctatg	ataccatgct	gacgcacaaa	attcagattg	tggtagccgt	ccgtctgttg	300
gatttggtgc	gctcttttagc	atagcgatgc	tgtctgaaat	accctggctc	gctatatatg	360
ttccggccaa	tatcgatgcc	atgcagatcc	atcgatatat	accggaagg	acgagacgaa	420
gcggaacagg	cagtcggacc	aggcacgaat	ccggtgattt	ctgtggcgag	catgagggtc	480
atggcaccga	gacgatgata	tagaatcgga	gaccatcgcc	cagtatgcgc	ttcagatatg	540
agccaagagc	atatcggtca	gcgtaagcat	cagcagggtg	acgagggcac	agcgaaatcg	600
gctgcccctt	cttctatccc	cgtcacaaatg	ctgtaagcag	aaagaggaaa	acgaagacgt	660
agtaattgat	cggattggcc	aatgggggaa	tataagggtac	tgtgctatgg	ctttgcgcgg	720
tatcggcagc	tgccgtagta	gttttcattt	atatagttga	gcggttgacg	gaaaaggcgg	780
atcacagacc	ggcaagcatc	aggaaaggaa	tgagtccggt	cattatttgc	atagagcaag	840
agccggaaaag	ctttccttaa	ttatgatcgg	aaagaaaaga	ccaaaataaa	aaggctcaca	900
cctacgaaca	ggaagtaaat	ggcccaaaat	acattatggc	aacgctctgt	gccgaaatgg	960
tggagcggat	cgtgcgcgcg	attcgtgtcg	gaatagttct	cgtggtacat	ggttctgtat	1020
taaatcttcc	ttcaaaagaa	aaccccgaaa	gtcagacaat	gggctttcgg	ggcttattcg	1080
attttcagta	catgttgctt	gttaatctcc	ttccttttgg	gaggggatat	ccttggtatg	1140

ctgcaatgcc	ggggagggtt	ttgccctcga	tggcttgagc	aaggctccgc	caccctgtga	1200
gacgtaggat	accttatcgg	caagacgaat	ttgttcacgc	aggcaacgct	gtctcctcct	1260
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tcggagagtc	cgcgcggctt	accttctctt	cggcatagaa	gcggagattt	tcgagcagca	2040
gcacttggcc	ggctttgact	tggccgcttt	gtccatggca	tcggctccga	tcgagtcac	2100
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aagttgtcat	cgaggggaac	gttaaatcga	cgcgcacgaa	ggctttcttg	ccggcgaaa	2340
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ttgcggacaa	acatacgaag	tttatataga	agagtagttg	ctttgccctt	taatcgccc	2460
tcggaatccc	atcgtttcgg	tatcgatccc	ggatggaaag	gcgttattgg	ttcctgaaga	2520
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tgtagttgtc	ggggacgttg	gacgagactt	gcaacagaga	aaacagaacc	aacttaatta	2640
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agaaaggaca	gcttaccgaa	ctgggagcag	tcatgtgatg	accggtgtct	ataccggctg	2820
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cgtggtgatg	actgctccaa	agcgaagggtg	gaaaactaca	aagagctggg	actgaactcc	3180
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gtctgtccgg	tacgggcaag	acacgctcag	tacggatccg	aagcgcaagc	tgatcggcga	3420
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gagaatactc	gcgtctctta	tccgattacc	acatcgagaa	catcgtgaag	cccggtgcca	3660
aagccggcca	tgccagaagg	tgatcttctt	ctcggccgat	gctttcggcg	tattgcctcc	3720
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tcaaggatag	cgtggtatca	tcgatgccat	cctcgacggc	tccatcgaca	aggctccgcc	4020
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ggccgaacgt	ttcatcaaaa	acttctcaag	ttcacgggca	atgatgccgg	caaggctctc	4200
gtagcagcag	ggccaagctc	taagagcgga	aaaaaacact	cgcggctttc	tgagagggaa	4260
gccaagagaga	gagaaaaaaa	gagggggagc	tgtgtcgcgg	atgacacagc	cc	4312

(2) INFORMATION FOR SEQ ID NO:1014

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1181 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...1181

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1014

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ccatcgattt gaggatctta catcgacgca tcaactccggc tattcgagaa aagctcgttc      60
gcgtgctgcc accatctttg aagattgagg cagataagga ctcatgttg gcaagaatac      120
tcatgcttat ctgcgggttc ttctgtcttca tctttgatct tgtcatatca ggccctctgtg      180
tattcctctct ttgcgtcctc tgccaacaaa aagactatta gccttttagt gggaaaagggt      240
gtattttgtg cggcttaatg aaaagaagtt taatcaatcc ttagtaataa caagagaaat      300
ggaaattgca aagattattg gcaggagat cctcgattcc agagcaatcc gacggttgag      360
gtagatgtac acctggcctg tggcataata ggcgcgcggc tgtaccagc ggagcttcca      420
ccggtgagaa tgaggctatc ggcttcgcga tcaggataag gctcgtact gtggcaaagg      480
tgtcctcaag ctgtgaagaa cgtaaatgaa gtgatagatc ccgcactctg cggaatgtcg      540
tattggaaca aacagctatt gaccgcaagc tcatcgaatt ggatggcaca aaacgaaaag      600
caacctcgga gcaaatgcca tgctgggctg atcactgccg tagccaaagc agctgcagct      660
tatttgata ttctctctta ccgataatcg gcggttcgaa cacctatgtc ctgctgttc      720
ctatgatgaa tatcacaacg gcggttctca ctccgacgct cctatcgcat tccaggagtt      780
catgtccgcc ctgtgggagc atgtctgttc cgtgagggtc tgccgatggg tgccgaaagt      840
tttccatgca ctcaaaaagg tgcttcacga tcgtgggtctg agactgcagt cggggatgaa      900
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tggaagctgc cggatacgtg ccggttaagga tattaccatc gcaatggact gcgcctcttc      1020
cgagttctta aggatggtat ttacgactac actaagttcg aaggcgaaaa gggcaagaac      1080
gctctatcga tgagcagggt gcttatctga ccgaactggg tggcaagatc ccatcgatct      1140
atcgaagacg gatgagcgaa aatgactggg aaggatgaag a

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(2) INFORMATION FOR SEQ ID NO:1015

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2018 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...2018

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1015

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gcaggagtga atgtataacg ataaaatgta aggaacgatg atgaaaagat accgaatatg      60
atttgataa tcgggggtact ctcccttggt ttctgggtcat gtgtcaaatt gcagtgtgaa      120
gagaaaagct ataaagcgcc gaaattgggtc ggaaaacagc ttcgagttgt tgcttgacga      180
ggataaaatc ctgctccgtc caagttcacg actgatagaa gtcacccctc tatccgagaa      240
tccacggggt tgatcagttt gaagtaatcg agatccgtat tgacattgag ggcaagccat      300
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tatatcggga tccagccata cgccggatgc tcggccgaac gttcgccttt cagaccgaat      420
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cgtattgttc agatcgaata tggggtatcc cgtaatttgt cccggccccgt ggtaggtgaa      540
tcccctctc gttctatatg aaatagtcgg atgtcgcgac ttttcagccg gactcggaca      600
gcaacagatt ttcttcatga ccgtgtttgc ccaaggtaga accggttcat gctcacagaa      660
gagcagcgta ttttgcggtt tcctgtttcc aatttgtctg ctacagcatc atggaagagc      720
ttgcgttgca gggctcgtgc gattcgtaac cgatgcgtcc gcagtcctga taatggtatt      780

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ccgacgggaa	acatgcggtt	cgaagtcttt	tattcttatt	cccttttctg	cgatatagct	840
tccaggccat	catatcccga	atggatatgt	ggaggaaaga	ttccaaatgt	tcctgatgca	900
ggggtgcatg	gtgggagagg	tgaatcagga	cctttccgga	ttaccgattt	gtcctattgt	960
gtcaatagcc	tgctctatgg	ctgggtgcga	ggatgttctt	ttcggtagcg	aagcccgttg	1020
ataaaaaagag	tcgacagctt	ttcaggcact	cgatttcttc	tgctgctata	tccttcattc	1080
ggtaaggaaa	gccatctctc	ctatttttata	tccgagtatc	ggcaaccgcc	atgcattatt	1140
cgaagaggct	ctaccgtcag	gtctgccact	tgaaacgcac	atcgggtttt	acttcgcata	1200
gtttcagtag	aggagtgcgc	ggataggatt	tttgcggaat	acatagtgcg	gcctgtcgcg	1260
tatggagtcc	aataattctg	ttcggcatag	acagcaagtt	cgcgatgccg	acagatgggtg	1320
cgcgatcgtc	gagtcaccgc	acgtgggtcaa	aatgttctgt	agtcagcaaa	acgcacgcag	1380
cgaatcgatg	ccggcaaaca	gagcttggtg	gcgaaagtcc	ggctgcagtc	gatgaggatt	1440
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cgctacgaca	taccctacat	gacagccgac	ttcggggacg	cgggtgctgg	tgcttgagcc	1560
taataatagc	aacgcacggg	ggcaaaaagg	ttgctacttg	atattataaa	atgtattgac	1620
ctccggatgg	agagtgatcc	cgaatttctg	tcggacattg	cctatgtctc	ttctgccaaa	1680
gctcccacct	gagtgcccgt	agctccgccg	tagttacca	gaccaaagcc	tgatgctcat	1740
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cggaaactttc	acgtgccatc	cggttgagga	tagcttggtg	tggagggata	ttcggttttgc	1860
aggatttgaa	tttctcggcg	gataccaccg	gatttacgaa	gaagctgccc	gattgcctat	1920
tgtggccgga	tcgggcaact	tggaattgcg	gatgcgtatg	ccgtatctcg	aatcgattgt	1980
agggtagggg	tgattcgttc	ttcttccaaa	ccttggcc			2018

(2) INFORMATION FOR SEQ ID NO:1016

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1810 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1810

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1016

tgctcgtgc	tcggttgaag	ggactggcca	aacagtatgc	cgatcagatc	aaacgttggg	60
caagctcatt	cggaattcc	ccgatagccg	ccatctgaag	ctgctctcta	tgaaaagggg	120
tgtggtgcag	tgcttagcgg	taagcatacg	tggcagaaga	agctttcaat	gcagttgtca	180
aaagaagccc	cgacagcgtg	aagcccagaca	gtcgtccttg	cagttgggtc	tgctctatta	240
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gtagcgaaga	gacgactgta	gccctctcgg	atctccgttc	tattatctgg	aagaggatcg	360
gatagatgag	tattctacct	atgtgcgtgg	tcgaaagata	aggtgtccat	tgccccatcc	420
gagacggaac	agctcggttt	ctttcggccg	agcgcaagta	tcgccgtcgc	cagcccgatg	480
ctcgtcgaga	ttggaggcct	atctggagcg	ctatccacag	ggaagcgatc	gtcaciaaaga	540
gaattgtatt	tgcccgatct	cgattatcag	gccggcaatg	ctgatgcgct	tacaatcggt	600
attcacgggt	ggtgaacagc	cccggtttgc	ccgaagatat	aagatcgatg	ctcgcctgcg	660
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gcagctctgc	ctcatactct	tcgtctctat	cgtgccaaaa	gtatcaggct	ctgaagatga	900
atcgggaagc	gattgccgac	tatgaactcc	tgccgaggat	ttctcaacgg	ccacagggtgc	960
cgaagccgct	gtgatgcagg	acagctggaa	atggaagcca	agcgtttgtc	caaggcgaag	1020
tctatctctc	aaaatttatt	gccaagagta	ctcctcagca	gtattggttg	gcacgaggtt	1080
catcctcttg	tccgatattt	ataagaaaga	aggggatacg	tttacggaag	gcagtatattg	1140
gaaagcttgg	aaaagaacta	tcctaatacat	gaggatacat	tcacgaacag	atagcccaac	1200
ggcttgaata	atcttctgta	cgattatcac	tctgagttgg	aaataatgaa	cagcatcatg	1260
aaatatcaat	tataacggcc	gtcataatgg	ctctctctgt	atcatccggt	tgccgtcaaa	1320

ccccagaaat	acagaaacca	aacgccccga	cacgctgcgc	agggagctta	cttcgttaat	1380
gaccagactg	tggagatgga	gcatgcggat	ccgcttcggg	cgcatacaag	gccatcgaac	1440
ctcgattaaa	acctttccgt	ccggaatata	caagcgtaca	ttcggatttg	tccttgaagt	1500
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cggggggtact	gaatatcggt	atcggccata	cgctaaacca	gcgaatggat	gccggcttcg	1620
tctgatagat	gcagagcagg	agagactgaa	tcttttcctc	tcctatgtgg	gatgaaattg	1680
gctttcaata	ccggtgactt	cgacggcgac	agaaagatag	acgaaatgat	ggcaggaatg	1740
gactacgagc	agcgcaggcc	ttccttgtgc	ttgctaccgg	cttggtattat	tcgaaccatt	1800
atttcaatac						1810

(2) INFORMATION FOR SEQ ID NO:1017

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4753 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...4753

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1017

aggttcttcg	aatgcgtctt	tcattgctgaa	gttggtgagg	gactatttcc	tctaccgatc	60
gatgacgaag	aattggcggc	aatagcactg	acgatcgggc	cgattgtcct	tttttcgtag	120
gaaatcggcc	ggtattagcc	accgacctgg	ccaagtcttt	actccgctac	ccaatttttc	180
tctgtccggt	ctccattcgc	tatagtaaaa	ccaccatcc	atatcaacac	agcagctgca	240
tacaaggtct	caagcatgtg	ggcaaacgag	agacaatgcc	ggatgagatt	gtttcatgcc	300
cgtagaagaa	tggagaggga	aattggtgaa	cgatttcgaa	gaagcctttt	ccctgaacat	360
cctcgacttg	ccgaactaaa	agaaatgctc	tacggtcggg	ggctttgtac	gctgcaatgt	420
ccggttccgg	atctgcaacta	tcggctctttt	ccgggaaaag	cctcagctcg	ataaggctgc	480
tatcaccgac	gcttccgatg	gcaaagcatc	atccccctgac	agattgggta	cctacctcca	540
aaaagaaaatg	gaggccaaaag	gatgggacga	agcggatgtc	attctcttag	cggagatgct	600
tatgtgggat	accggtcctt	cggagctgcc	gtcgtagaag	aatttttagaa	gccgaagggc	660
ttcgtgtggc	tatcgttccc	caaccgactg	gcgcgacgat	cttcggggact	tcgcaaat	720
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gcgtcccgc	tacccaacca	tcgtttacac	ccgcatactg	aagagctggt	tccggatgta	900
ccggtcattg	tcgggggggat	cgaagcttct	cccgccggct	gacgcattac	gactattggc	960
aggacaaatt	gtcccccggt	tactctatca	atcagggtgc	gacctcctga	tctacggcat	1020
gggagaactc	ctttgcacga	gatagcacag	cgattgatag	ccggcgaacc	gttcgatatt	1080
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cagcctatga	gatgatcaag	cactcggta	atgttcatcg	cgctgtttcg	gtggtgtg	1440
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ccctgctcca	tgcgcgacat	gatgcctttc	agtatggcgg	catgaaacgc	atatcgatgg	3060
caccacccac	tacgtatta	acgaagagag	cttaccgccc	cattccaatt	ccactacctg	3120
cgtgctgcgc	ggagtgtacg	aaactcctgg	ccgccgaatt	tgaacgattc	gggcagtggg	3180
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cgaggtctta	tatatcttat	ctcgatcttt	tcttatgttc	caatcgccat	ttaagcgtac	3360
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gatccatgtc	gatectcttc	gcgcattctca	ttcagagctg	cattcatctt	ttccgtatcg	3480
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acgatgctcc	acgccctttt	cgttcagcgt	attgccaggc	gtacctcttt	gagcttcaca	3600
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cggcgcacac	acatatcctt	tccgcactga	cacagaacac	ggggtacata	ccctgcgaga	3960
tcagaccgga	cggataccat	cgcgcattct	ctcttcagag	agacttccct	gatcgaagat	4020
ttttccatca	ggctctcatc	gttttcgggc	gcagcctcca	ccaaagctga	tgcatctctt	4080
tcgctttgtc	ttgctcctcg	gccggaatct	ccagtactcg	ggcacacctc	cttcagggtt	4140
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agtgaagtgc	gccttgctct	gatccaactg	gttgatgatg	aagatggcag	gctgtgcaac	4320
tgctccacat	agcgggaattg	attgataagc	cctacttcca	cccatactgc	gcattcacta	4380
ctacgagggc	acagtcctgt	acgttcagag	cgagacggta	ccgccgataa	agtcgtccgc	4440
tcccgggcag	tcgatgaaat	cagcttttta	tcttgccact	ctacagagaa	aaccgtagag	4500
aatacagata	tccatactcc	ttctctacgg	ggaaatagtc	gcagaccgta	ttgcctgatc	4560
tatgcttctc	ctacgtttta	tcactccacc	ctcgaagagc	atcgccctgc	aagggtgggt	4620
tttccggcgc	cggagctacc	caaaatggag	atgttttcac	ctcatttgct	ttgtacactt	4680
tcatgggtgaa	gtcgttggtg	ttaggnnttt	aacaatccgg	attagaatcg	ccgcttcgag	4740
aggctgtaca	aac					4753

(2) INFORMATION FOR SEQ ID NO:1018

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1149 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1149

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1018

ctgagaattt	tatttccttc	tcttttcgtg	acaaatctgt	atgtatcaat	tatttcggtt	60
gatataattg	cgcaccaaag	atagtgccaa	tttgggagtg	caaaaataac	tgtagagcca	120
agacttatgg	caaggcatta	gtcgggggta	gctgtttcaa	aagtgtgcat	tcaaaggata	180
agcatttata	taagtaacat	aatacagatt	atcattgttt	gtgtcgattg	cattacacat	240
cttctattat	gttcaattac	gagtgaagcg	atcaactctt	ttacatcact	nttcatgcct	300
tcgaagataa	tcctctatgc	catcgactat	ataagaagct	gcacaggatc	tacgaagttg	360
taacagccca	cctgaacagc	cgtggctccg	gcaataagaa	ttcaatggca	tcagctgcag	420
atgcgatccc	ccccataccg	atataggcac	ttgtaccacc	ttggcggttt	gccataccat	480
acgtagagca	tgggcttgat	acatggcccg	gaaaggccct	ctgtagtggg	cgaaaggatg	540
gacggcggtt	ttccgcgtcg	atagccatgc	caagaaacgt	attgaccatg	aaatagcatc	600
agctccttcg	gattctacgg	cgcgagctat	ctctgtgtgt	ctgtcacgtt	gggagaaagt	660
tttacgatca	atgtcttgtc	ataagccggc	gcacagcttt	aacgacggat	gccgccccct	720
cacaggtaac	cccatagcca	tccctccctg	cttgacatta	ggacaagaaa	tattcaattc	780
tatactctga	tatgctccag	ttcattttatt	attcgggagg	tctctgcgta	atctccaaag	840
tggagccgct	tacattgact	atcatctccg	tccgataatc	ctgataaccg	gatatatatg	900
ctctacaaaa	tagtgaacac	ccttattttg	cagcccacgg	cattcagcat	ccccgatgga	960
gtttcggcca	tgcgtggata	gcattccctt	cccgatgatg	aagcgtagtt	cctttgacaa	1020
ctatggcact	aagcggctta	tatcgataaa	atctttgtat	tcgggtaccat	agccatacta	1080
ccgctggcag	tcattacggg	atttttaatt	gttaatcccc	tacctattct	acttctgttc	1140
gaaccattg						1149

(2) INFORMATION FOR SEQ ID NO:1019

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1987 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...1987

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1019

cggtacccgc	atggaagctt	cagaatcaga	tggctaataa	tcgggagacg	tgctggcctt	60
tgtcaagtcg	atagctacgc	cctatgctcc	acaggcacga	aagacgctgc	cgaacttcag	120
gcttatgccc	gtcctcaaag	tttcgaagag	accttacggc	tgctgactgg	aactactatg	180
ccgataagct	ccgcaagaaa	agttcggtct	ggatgagaac	gaagtgaagc	agtactttgt	240
gacggcagcg	tcctcaagaa	tggagtattc	tatgctgcc	acaagctcta	tggtcacat	300
tcaaggagcg	taccgatctg	cccgtctatg	ccgaagatgt	acggtatctg	atgttatcga	360
ccaagatggc	aagcagctcg	cactcttcta	cacgacctct	atcgccgtcc	gaccaagagc	420
ggaggtgcat	ggatgagcaa	cgggtagacc	aaagctacct	gctgaaccaa	aagccgggtga	480
tctacaatgt	tgcaactatg	ccaaaggcgt	tgatggctcag	ccctctctca	tcaactacgt	540
gaggtgacca	ctctcttcca	cgaattcggg	catgccctcc	acggtatggt	gccgcccagc	600
agtatccttt	gctctccggg	acgaatgtgg	cgcgtgattc	gtcgagatgc	cgtctcagct	660
caacgaacat	tgggctatgg	atccggagtg	tttgccaaact	acgctaagca	ctggaagaca	720
caggagccta	tgccgcccga	ttgggtcaaga	agattcagga	tgcgagcgac	ttcaatcagg	780
cttatctatg	ggagaaaatc	ttgcagccgt	aagcctcgat	caggcatggc	atagctcacg	840
gtcgaagagg	cggaggccat	taccgacgtg	gccaagttcg	aaaagaagcc	ctgcgcgaaag	900
tcggtctcta	caatccgcag	atacctcttc	gtatcgctcc	tcttatttcc	gccatatctg	960
gagcaatggg	tatgcatccg	ttactacgct	tatctgtgga	cagaagtgtc	ggatcacaac	1020
gtttatcaag	gatggtgcaa	aacggtggta	tgactccgca	aaacggacaa	cgccttcgga	1080
tatgattctt	tcgctgggca	atacacagga	tttcaacgtg	atcttcacgc	gttcaccggg	1140
ctgcaaaagc	ctgacatcag	ggatttgctc	cgcgctgcgg	tctcatgtaa	tacagcaata	1200

gacgaggctg	tgctttcagg	ttccagatcc	tgcaagagca	cagcctcttt	gttattcacc	1260
ctataccaaa	aacgaacagc	tacgatgaaa	aaaggagatc	tactcatcct	tctgatcatt	1320
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ctggccggac	ggatcaaagc	ccaacgatac	cctgccccac	ctatctatgg	gtgcgtattg	1500
tgatatgggg	cattgtcgga	tactcatcgt	cttcaacttc	gggttgtagc	aagccggtat	1560
acgagggtaca	tcgcaagagg	actgctcccc	gacatcgaca	gttcggtcta	tacggcttcc	1620
ttatctcttc	cgccatgaat	ctgacattcg	gccccgcctt	catggcgccc	accgcatcag	1680
cgatacatat	ctggagaata	aagctacagg	acgggaggaa	gcatccggct	cgccgttgaa	1740
cgagtggatt	ggaatcgctt	tatgctttcg	tcggttgcaa	gaccattccc	ttcttctgga	1800
taccggcaca	tacgtcacct	ttttacttcc	acccgagtac	cgcgtctttg	tggtgcact	1860
ccgtccatcg	ctctgggact	gatcttggcc	ttggcttcct	cccacatgc	aaggcgtaaa	1920
acatcaggga	ccgaacacaag	gatttgatac	caaaatgatg	aaatgccatg	aagggaactga	1980
aatgccc						1987

(2) INFORMATION FOR SEQ ID NO:1020

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9190 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...9190

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1020

ccgtaccgga	attttattga	ttaaagtgtat	ctgtttttgt	aacaaatgtg	tcgttttctt	60
ggacatccag	tctatagtta	gcgtccaatc	tcttgagtca	gagtcccaat	ctgtacaatg	120
tccgaaggta	agctttgcat	tcaactcaatt	ttccaatggg	tgctctttcc	ttttatccat	180
ccattggcct	tccacaagg	tggaactcat	ggacaagaa	acagaagaac	agagcttgaa	240
acacaaaaaa	agaaccgaag	ctgtgtcaaa	actggatttt	ggttcagtc	ttttctttgt	300
gatttgctg	gagtaaggcg	actaaaaaga	aaaacctctc	aattcaaaat	gaaatcgaga	360
ggttcgcat	atacaagttt	tgtgtcgtgg	tgaccaggga	atcgaaccgg	ggacacaagg	420
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atgtgtgttt	atttgatacc	accaaatttt	gtcacggttt	ttttctttcg	cagatccgga	540
tcgagtacaa	cgttgcgata	aatttaggat	tgagacgtcg	agaggcgtct	gaagttccgg	600
ttccttccgg	gtatatgatt	cggatcggt	tcggtttctc	ggtctgtgca	gagataagag	660
agccggttcc	tgtattgcag	aatagggcaa	tccgatatta	accgacattt	cctgcctttt	720
gagaagaaaa	cttctccacg	atcatgttac	gttttcacaa	aagtggcgat	gaaagggtgac	780
aaaaagcatg	ccgaacagca	ttcgaatgac	ttttgggtcta	atctctgccc	catggcacgg	840
tggcactgta	tttgtagcct	cttacaagca	aggatttaca	gccgtaaaaa	cggattccgga	900
cgatgcccaa	aggagtattc	cggcgggacc	tcatacttta	tactataaac	ccttccgact	960
ttatacttaa	aaccctccac	ctttatacta	taaaccata	ccactttata	ctataaacc	1020
ataccactta	tactataaac	ccataccact	ttatactata	aagcctctat	actttatata	1080
taaagcctgc	gagctttata	gtcggaaagta	ttaaagggat	gattgtctgc	tacacttgtg	1140
caagaaaaag	gatcagaacg	gatagcctac	tgcaattgac	aagcgaat	ggaagaaagg	1200
tttggcgctg	tgatagccca	ttgttagccc	ctgtctgctg	aggatcgtag	gctttcagtc	1260
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agcatttctt	tgtagaagcg	atcgaaacga	aagagaccgt	cctcctgatt	ctatactcct	1380
ttatcgteca	gacattgccg	gcatcgacaa	aagctgctgc	ggaaacttcc	agaacagctt	1440
tgctctgtat	tcgacattca	gatccagacg	atatcaccca	tctgatcgaa	gaaggctctg	1500
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gccagtcgga	aaccagatg	cagtgccaaa	gtattgtcct	tttcgaaaga	acggttttag	1680
ccagatcgag	atcgagcttg	acgaactgag	cataggcaga	ccgaacattt	tatacaacc	1740

gtgttcgtct	ttcggagaat	cggtagataa	gaaatggctt	gcagcagggt	gccggctgtc	1800
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(2) INFORMATION FOR SEQ ID NO:1021

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9492 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...9492

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1021

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tgctttcatc	ggcttctctga	ccactttcct	tattatcacc	gaatttctac	ccccaaggaa	9420
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ggcgggtacc	ga					9492

(2) INFORMATION FOR SEQ ID NO:1022

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 623 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...623

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1022

cccggcatta	atcctaagac	gaaaaaatct	atttctatcc	ctgcccgtag	gttggttcgtt	60
tcaaaccggg	ctctactttg	gaacttaagt	aattcgcgta	tttcttaatt	atacaacgaa	120
gctactacta	tcttaccgtg	cagtagctcg	ttgtgtatta	tataatagta	tcgaacagcg	180
aacagccttg	cccttgaagag	ggggagggtc	gttcgctttc	ttttggatcg	ggccgatttg	240
aggacgaata	ggaaataaat	gtttttataag	acaaatcaat	aagatgcaga	tgagacattt	300
cgtgtcgttg	cgatcgtttc	gctgatcttt	tcttcttggg	tgagctttac	gcgcaaaaga	360

atagttggtg ggtgggtgcc catgccggac gcagtacttc aacaacacaa gtgaggatat	420
gaagaaagga tggaaataccg ggtagtcctg cgctactatt tctccgatcg aatatattct	480
ttggctacac caattatgga ttctgttctt ctttatcccc ttccggctat ttcgatgagt	540
tggtaacagt cccaatgcgc gcttcagacg ccatagtatt ttgccggcgt gggattaggg	600
tatgaatttt tccaaggcga ttt	623

(2) INFORMATION FOR SEQ ID NO:1023

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 471 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...471

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1023

tctacagact tttctcattt tcttccgatg ccgagattac cttggaggca atcccgaaga	60
tctgaatata agctatgtac aggagcttcg tactctgcga tcaatcgaat aagtatggga	120
gcacagagtt tccacgatga agacctgact tcttcaatcg tcggcacaat gcccgccaag	180
tgctcgaagc agtggaacct gccgcaatgc gggacttacc aacctgagta tcgatcttat	240
ttacgtctac ccgggcagac gctgtctcgc tggcaagaaa atatctccgc agtggttgctc	300
tctccccacc ccacctgtcc gctaccatct gatatacgaa gaagaacccc cctgacacgc	360
ctactccatg caggaaaggt gcgcgaagtg gagaggaggt aagcctcgaa ctcttccgca	420
tgcttcgcga acagctgaca gagccggtat gaacactacg agttcaattg c	471

(2) INFORMATION FOR SEQ ID NO:1024

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 679 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...679

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1024

cctgaaagtg tgtgggaaag cgagggtgaaa aatacgagaa aacggacttt gttgctcgga	60
atgtgctctt tggaaagactg cctgacgacg tgtatataac cattttcaat ttatatatag	120
atcgttttca atttatatat aaatcgtttc aataaatata tatatcgtaa acgatttgta	180
tataaaacgc aggcccaaaa ggccttttcg gggcatgata aaaagaagac acccgtcagg	240
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gttaattgaa	aaaatgttta	tttttttatt	tcaatgccta	tgaggcggca	aaatctccaa	360
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gttacctggt	ttcaagtgtg	cagcattagg	cgtagctcag	gggcctccaa	ttctttgttt	480
acccgaatat	accggtaaat	ccaacggggg	tttcaagcaa	ttggccatta	atgacatcta	540
gtagtaatag	gagatccctt	ttggaacttc	tgtttcggtg	ctcatcagtt	gaagaaaaac	600
tgatgtatct	cgatctgata	aggctgaaag	aattgttggt	tagtcggttg	tctccttgtc	660
gaaaagataa	atctccatt					679

(2) INFORMATION FOR SEQ ID NO:1025

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4437 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...4437

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1025

tatcttcata	tacgatcagc	tcttccaata	atagctgcaa	gatcatattc	cattttggcc	60
atnttcttca	aataacttcc	cggaaacttag	attatgcatt	tgcatcctaa	aatgtcctta	120
ggaactgttc	ctctattgat	gttgtctttt	ggaggatttc	tccatgaatc	atttgacaa	180
aagctgccgg	atctaacaga	cataattggt	cagcttctca	ttctcacgat	agtaaagcac	240
ctccctcgca	gactaagctg	gttcaattcg	gtctgtagat	actctatggt	gtaagatcat	300
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attatcaccg	gcgattgtgg	gaagagcttc	gtcaatccct	tatctttttc	tgtgatctga	420
attgatttac	tccgtcttgc	gcaacttctc	gcacccgctc	attcagatag	ttgagcgcac	480
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gatacgata	atttgtatcg	tattgactaa	gaatgttggt	ttaccggaag	aatgatttcc	960
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ttttaggcct	ttttgcccaa	aatcatctct	atcgtaccgt	cgcccataga	tgcttcatgg	3660
cgcgtcttcc	ctgacgatac	gaacgaagag	gatagcgaga	tagacgggca	ttccgacaca	3720
gaagtaatcc	aagcattgca	aaggagggtg	ataccgataa	gctccggaat	gacttgagga	3780
aatagttggg	atggcgctacc	gtcttgaaca	ggaagctcgt	ttgatacgat	gatcggttac	3840
gatatagagc	ttcagcgctc	acacatccct	cgcttataga	tgacgaagaa	gagcatggca	3900
taggcaaaaa	ccaagatcgc	acgccccagc	gggatagcgt	attgaactcg	actcccgtgg	3960
catacgcttg	tacaggggaag	tgaagtaata	ggctatgtga	gccagggtga	ggaaaagcaa	4020
ttgagcttgc	catactgtac	tgcgcccttg	cgtagcagtc	gcttctcttg	aagatggaat	4080
aggagaggga	gagcacttcg	caaagctaaa	taaaagatga	atgtggtgat	gatggtttgc	4140
atacttttta	agggttgggt	ttatttccga	tctcgttcat	attgagctcg	gcccacgggc	4200
ttccgtgtcg	tcaacgcgtt	gggatgggtt	cgggcccatc	tggggctttt	gcctgccatc	4260
cacattcctg	acacagcagg	atgccgttta	cgccttgtag	gatagtaacc	cttcgtcatc	4320
gataatgttc	gttacactca	taatttatgt	ttttctggtt	atgattccgg	tgtgatccga	4380
ttgcggatat	nggggtttgg	tacatttgaa	accaacagat	agcgagcatc	ctgaatc	4437

(2) INFORMATION FOR SEQ ID NO:1026

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 644 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...644

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1026

cgcgttctac	gccgaaatct	gcgatttccg	cacggcggaag	gacatcgggg	cgaccgtccg	60
gaaaagcatg	aaattctgca	tcacattccg	cgcagccgga	gcaggaagcc	tttatccaaa	120
agctgatgga	atttgcccgt	accggtatgc	cgagctattg	ggtcgggaga	aactctccga	180
tcgggaagaa	aaggcgagat	gcttatcgcc	accgactacg	cccgaagat	gtcgctcgac	240
atgcgatgat	ctctccttct	tacgaagacc	atatcgacaa	caaggcttcg	cactcgcccc	300

actgatccac	gattattacc	ggaaatatga	acgggagaaa	ggtcccagtt	tgttttctcg	360
gatttaggca	cgtacaagcc	ggacgagtgg	aagtttacag	cgaaatcaaa	cgaaaactga	420
ccgatgatta	tggcatccct	ggtcggaaat	ccgtttcatt	caggaatgca	aaacggaggg	480
tgccaagaaa	cgatgatcgc	gggcatgaat	gccggcagca	tacgtgtcct	gttcgggtca	540
ccgaaatgct	cggaacgggc	gtcaatgccc	aacagaaggc	tgtggcgggc	atcatcttga	600
tacgccctgg	gtgcccagtg	ctctgagcac	ggatgcagca	tcga		644

(2) INFORMATION FOR SEQ ID NO:1027

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 358 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...358

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1027

tattatgcaa	cnaacaaaca	caacttcagc	agaaaagagc	agtacaataa	cgtcaganca	60
tcaactccaac	tttttccgaa	aagaangcct	atgacatgat	tatcangctn	ngacggcttc	120
acncggtacg	aactancctt	tcccaaggt	ctgcatacgc	tttctttcga	tgccgtctac	180
gatcgcttcc	gtttcgatat	ttgtatcatg	acaaggacag	cagtgagagc	ctgatcaaca	240
accaagtcag	accgagcaac	ccacattctt	tccgggtcag	ctacgcaata	aaaagatcag	300
atccgataca	cggcacaggc	tcncgngna	tttactactg	ctttgcgcac	aaactgac	358

(2) INFORMATION FOR SEQ ID NO:1028

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1004 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1004

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1028

aaatcgctac	acctatcaat	gtaatcggca	agattaccaa	gcaagaaata	tcggtgatgg	60
acactttgct	ttgtgctttg	gtcagtgat	ggggccgatg	tatctgtatc	ccccattgtg	120
gaggctcttg	atggtgaagg	agagtactct	ctttgcatta	taaatttccc	gtgtccaatg	180
aagggcatac	gggagcttca	cttttagctg	cttccccgag	agtgggtgctc	ccggcacaga	240
attggtacag	tgaacattaa	cttcaagtac	aaaggcggtg	gaaccggttt	gactatatcg	300
ggctagggcg	tatagctctt	atccagagcg	gtaatacttg	caccttcagt	acaacagcaa	360

tggaagcgt	cttgcccttg	aagtgtacaa	tccttaggcg	ttaaaggtatt	tacctctcag	420
ctgcccgcag	gacccggctc	tatacgctgc	cggtgcgtct	gcagcgtggt	gtgcataatct	480
tccgcacac	gaaggaggta	agcctgcgtt	tggtcagaag	tatctgatta	agtaataatg	540
gagtacggcc	aaagcctgca	cgatttgagg	gctaaggacg	ttttcccag	ataaaagagg	600
ctgcctcgga	gttcgacata	gacttcgggg	cagtctctcg	ttataatttc	acgtcactga	660
atctgattga	ggaaggattc	ggcatctttc	tattattagat	atagtgccga	catttgatcat	720
ccgaaagcag	acagtatact	ttatcatcat	ggcaaagata	ttggtggcat	ttaacaccgt	780
gagcaggggg	tcgaccggct	taccgctcgt	cacgaagtgg	ttttcccgc	caagggcgcg	840
attttactca	agaagaaata	gcagagcgta	tcgtggattg	cgtgttctct	gttccgtatt	900
cgacattccg	atcggtaggg	atttgattga	caaggcccga	tcgttaagt	tgatcgctaa	960
ctatgctgtc	gggtacaata	tatcgatgtg	acttatgcag	catt		1004

(2) INFORMATION FOR SEQ ID NO:1029

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 809 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...809

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1029

tggtcacgct	tcgtgtttgc	gactttttgc	attaagttac	taccgacaag	ttagcatcca	60
gtctaagagc	aggacgactc	tgagcatttg	caaaaccggt	gttgcgagca	gcatagtagc	120
tgccaaaatc	attttcttca	tttttcgtct	tttttgagtt	ttgttctaca	atgtaacaca	180
ctctctctcg	ttcaaagtat	gcctatacat	accttcgat	gcagcaaaga	tacacaatga	240
aacgttctat	gattcaaatg	gaagatttgc	acttatcagg	tggaatctgc	aaaagcgaaa	300
aacggacaaa	atattggatg	atataaaatt	attacataca	tttcaccgca	tttcaaacga	360
aaaaaatgct	actaaggctg	aatcgctagc	tcgcaggtag	agcacatccc	ttttaaggat	420
gggggtcctg	gttcgaaccc	cggcgattca	cgaaaagaaa	ggggccatgt	caaaattcgg	480
tttttttgaa	tacgcctcaa	aaagttggat	attaaattat	ccttgtgtta	tagaaagagc	540
cggtacaata	ccggactctt	ttcgtttaat	cttgccttaa	ttctactatt	ctattattgt	600
tatctctctc	aatgcattga	taaaactctc	ccgagagcaa	atttctcttt	acacaggagc	660
tatgaccgca	taatacaaaa	agaagtcttt	tcaagtgata	ataggacacg	gaacgagcca	720
tctgtttttt	aactcaataa	caaggcaaaa	gtaatgtgtt	agagatccta	attgtagaac	780
aaaggaccaa	ggatacagta	taaactttc				809

(2) INFORMATION FOR SEQ ID NO:1030

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 530 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...530

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1030

ctaagcggaa	tgccgacctt	cggtatcgag	ctgggcgaca	tcgaacatcc	gaatacacgt	60
tggaggagat	tttccggtat	ttggccgatg	cggacaggcc	ctgtatcggt	gccatcgatg	120
agttccaaca	gattgcgaag	tatccgggaa	gaatatcgag	gctcttctgc	gcactcatat	180
ccaaaagctc	cgcaacgcaa	tttcatTTTT	gccggcagcg	aacggcacat	gatgcaggag	240
atgttgcttc	ggctgcacgc	ccgtttttacc	acagtgccga	tatgctggag	cttaggccat	300
cgaggcggat	gtttatatcc	cctttatcgt	agggcatttc	gagaacgccg	atcgacgcat	360
ctcgcccgat	gatgcacacg	ggttttaccg	ctttcaaagg	gcatactttc	tatatacaga	420
agacctttaa	cgaggctttt	gagacacgcc	cgagccgaag	tatgtaccgg	ggagatatcc	480
gagtcggcca	cgataatatg	atagcatcga	acgataccat	attccgcgag		530

(2) INFORMATION FOR SEQ ID NO:1031

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3023 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...3023

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1031

aatacgcaac	catggacatt	caggattaaa	gagacgggaa	tcgacattcg	cccgatttta	60
caaaaacgct	gcccgtagtc	gatacctgata	atcgagagta	tttgtttcac	ttggatgcgc	120
tacggagaat	ctttgtgtag	cggcagccat	aaaggatacg	agacgatggt	ctctatcgca	180
gaaaacggca	cgatcccatc	gaacttacca	agcaggattc	cgatactcca	tctcctctgt	240
ttcctatata	tccgtaaggc	agacgaacag	aagtgtctat	gatggaaata	ctatcctgtg	300
aacgacattg	tcgctttggg	agaaaagagc	gatatggaac	ctttgtcgga	gcccatttct	360
tcaagaatgg	cacacgggag	ttcgacgcta	ttcggaaatg	gtttgtgagg	gcaacagcat	420
acaaatgcga	gacaaaaagt	taaagaagaa	ttgcagcaat	ggatgcgcta	taacaagaag	480
catcaagatg	aacgagagac	ggactcagct	atgccgtatt	cggtgcaccc	aatctgtctg	540
cttcattgca	aaggccatta	tcacccgact	cattaatgag	aagtcacaaa	tagaaatgat	600
agaagaaaga	tagcctcctc	ttctcatttt	gttttggttac	cacttcgaac	aatacgggtg	660
tgcaatggat	aaaattgggg	agagcatgga	acatatcctg	ctcaaggcta	caggtatggg	720
tatttcgcat	gcttaatgaa	ccagcccaat	gaggtacagg	gcctttcggg	aaaaatggca	780
gaaaactcgg	catcgaagac	gaatataccta	cggttctgat	acgattggga	tatggagtaa	840
gatgccgtat	tcggttgagaa	gaagtgtcca	atcctgcatt	atcctaattc	cttcgattga	900
aagaatcaag	aggatacaag	cctcaaagg	gtcccaccga	aaaatctctt	tggggccgga	960
cagaatgttt	gagcatggct	gcaaaaacga	agaggggtgct	gcaaagacga	aacgcttgca	1020
gcaccctctg	agctttcagc	cttttatcct	ccggcttatt	tcttcagggtg	tttggcgaga	1080
aaccgagcat	ggcagcgtat	agctccatgg	agttttcttc	acgatggatc	cgtggccttc	1140
gttgtaacttc	accatatagg	gtacttcgaa	tccgcggcac	gcagtgccgt	tacgatctga	1200
tcggactcgt	tgatattcac	gcgcggctcg	tggctccctg	tacgacgaac	agtggcttat	1260
tgatcttgtc	gatcggaaga	aggggggacac	ttccttggcg	atagctgctt	cctccggatt	1320
gtcaggctcg	accaaatttc	cttgaccatt	tccttaaacy	gcttccaata	tttgggaagg	1380
agtcgaagaa	ggtgtaaatg	ttcgatacac	ctacgtaatc	ccaccgcagg	catagagatc	1440
gggtgttttc	accagaccca	tcagcgtggc	taaccaccgt	ggctggcacc	gtatatggcg	1500
atcctgtcag	gatccaccca	ccttggtcga	tagcatagcg	cacaccgtcc	tccacatcgt	1560
ccatggcctg	cgaccgatct	gtttgaatcc	ggcacggagg	aattccttgc	cgtatcccct	1620

gagatgcgga	aattgacttg	caggggtggca	tatccgcggc	tggcgagagc	tgggtctcgg	1680
gattgaagcc	ccatgagtcg	cgtatgcctt	gggggctcca	tgcggattga	cgatcagggg	1740
tactttcttc	ccttcgaggg	ctgcttcggc	agagtataaa	agccatggat	agttagtccg	1800
tcgcggtctc	tgatttgatg	gggcgcacat	cggccatata	ttctctcttg	agctgaggca	1860
tcgggtcatag	aggagggtaa	acttcttggt	gcgcgtatcg	aactggtagt	agtgccgtat	1920
agcttgctgc	tttgtacggc	gataagcagg	atgggtctcat	atcatcgtaa	tcgaccacgg	1980
agaattcttt	gcccttgaat	tccttttctt	cagcttggtc	agctctttgt	aggtggcact	2040
tacgggtacg	actacggatt	ctgccttcg	taggccatga	ggtctatttc	gtagtttctc	2100
ttacgaggag	gtgcaggccg	ctgacgtcgt	agtcttcgtt	ggcgaagatc	tcgcggtgat	2160
cttggtctgc	ttcaggctgt	agagtacgat	acgagtcttg	tcgcttccag	gttggtcagt	2220
acataggctt	cgtctttggt	tttgaggcca	tagtgaacgc	gatgactccg	aaggtgtcgt	2280
cccagtgtgt	tttcttcage	agaggaactc	gcccgtagcc	aaatccttgt	agtacaactc	2340
ggattcgatc	cctttacgag	gcggctgtat	ccacgcagtt	cgccgtcctt	gtcgaaactc	2400
taccttgaat	ggggttggcc	gcacctttat	tctcgtagag	ctgggtcagc	cgctgtttac	2460
tacattcagt	ttgtagggtt	cgaagatctg	cggattgttt	tgttcatgga	tatgatcatg	2520
tagtcttctt	gctctttgag	catgttgaga	tcgaagcctt	cactccgtca	aagggggtga	2580
gatcgcggtt	attgctgcgt	cgatattcga	agcaaagagg	tgatagttct	cattccctcc	2640
tttgtcatga	caaagaagag	acgttcgtcg	ttgatccatc	cgtagccttt	gatcattcgt	2700
ccttttcttc	gatggcacgc	ttgacgggtc	cggtggaact	ttcttgacat	agacatggcg	2760
tttgccggca	tcgtcctttt	ccatgtatga	gagtacttgc	cgttggggct	tagctgaaaa	2820
gcggaagcct	tgggtttggc	aagtagtctt	ctaccttgta	tttgtagttg	cccttggtcca	2880
aagctgccag	tccttaagct	cttcttcggt	cgaaggcaag	gctgtattgc	cgggcaattt	2940
gattcgaatc	gttgtagcgt	aagcggcagg	ctgaagccca	tctgctctaa	ttgccttcta	3000
tcgtattgcc	ggacagggtg	ccc				3023

(2) INFORMATION FOR SEQ ID NO:1032

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4453 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...4453

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1032

gcctgctaca	catgggtgcg	gagcacgccg	taatcggtat	ttcggggcggc	tcgactctgc	60
actggcactg	atcgtctgtg	cacaggcatt	cgaccggcgg	atctgccccg	taagaacatc	120
attgccgtta	cgatgccggg	gttcggactt	ccgatcgtac	ttatcggaac	gcctttgctc	180
tgatggaggc	catcgggtga	cgatcaaaga	gatagacatc	aaggaggctt	gtctccgaca	240
cttcgagcca	taggacataa	tccggagggtg	caggatacga	ccttcgagaa	tacgaagctc	300
gcgagcgaac	acaaatactg	atgaatctgg	ccaatatata	caagctccag	ttataggtac	360
gggtgatctg	tccgaactgg	ctctcggatg	ggaacgtaca	atggcgatca	tatgtccatg	420
tatgccgtca	atgcagggat	accaagacta	cggtagacat	tctcgtcgat	catatagcgc	480
atagcggctg	ctggatgagg	cagcttcggc	tggtttgctg	gacatcgctc	gtactcccac	540
agtcccgaac	tcaagcctgt	gggacaggat	ggaaatatca	gccagaagcg	gaagatctgg	600
tcggggccata	cgaattgcac	gacttcttca	tctaccattc	ctccacaatg	aatacaagcc	660
ctcgaagatc	tactacctcg	ccggtgagct	ttcaagggga	tctataccaa	ggcggagatc	720
aagaaatgga	tgtatgtatt	ttccgctcgt	tcttcgctca	gcagtacaaa	cgtaattgta	780
tgccgatggg	ccaaaagtaa	gctgcatacg	tctgtcgccc	cgcgagcat	ggctatggcc	840
agcgatgcc	gcagtgcgct	ctgggttagc	gaaatgacca	agtcgaaacg	gattgatctt	900
ttggagggtg	tccgctcgga	aaagacagag	gagtggtcaa	atactaaaga	cactgcctcc	960
gtcttttttc	ctccatggaa	tgaggagaga	gagaagagaa	tgctgcaagt	gcgtcggcct	1020
tatgaccggt	ttacagaggc	tctctcgaat	ttacaatcga	cactctcaac	aagaaaaacg	1080
actacttgta	ttcagcccaa	ctcttgatgc	gaatatcctc	agggctagtt	tgcagaatgc	1140

cgtgatgaag	gcagaagcca	aacgagcatt	tgtaacagcg	ggatattcag	gtcgaatggct	1200
gcacggcgga	gtttataacc	attggcagtt	ctcctgcggt	aagattcttg	ttgatattga	1260
ccacaagctc	gatccacgat	tgtgaagcaa	ttccagagct	tgaggctgtc	cgttctcgct	1320
cggcagaaca	ctttgggtcg	ttcgattccg	ttctctctga	gaaaattgtg	cgccccctcg	1380
tggcatagat	cttataccct	ttggctgcaa	gcattggtcg	acatcaagca	tatccacttt	1440
ttgcttatag	cctccggtag	ataagagtac	ctcttctgag	gaatgcgata	gcctaccgaa	1500
agcatactct	tcagtacagc	tcgtccgtat	catccgctat	acagcctacc	tctccggtac	1560
tggtcatacc	acacccaaga	cagggtcggc	cttttgcaag	cgggtgaagg	agaactggag	1620
gccttgatac	cgacatagtc	cagatcgaac	tcgctcttgt	tcggctctct	accggcaggc	1680
cgagcatgat	acgtgtggcc	aattcgataa	agttgtcttg	agcaccttgc	tcacgaaggg	1740
gaagctgcgc	gaagcacgca	aattcactcg	atcaccttaa	tatcgttacc	cttggcaagg	1800
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tgttcggcgg	acagtctcta	catacaattt	ctgtgcaggg	aactggatag	tgcatcacc	1920
gagtgcacac	ctgcaaattc	gatatgctcg	ctgatcgcat	ggctatgata	tcaccatcac	1980
gcgccacggc	atccatctcg	acctccttgc	atgctcgata	aactggctga	caacgacagg	2040
atgttgcttg	gacacattgc	agccaattcg	aggaaacgat	gaagttcttc	atcattggag	2100
cacacatcat	agctgcaccg	gaaaggacgt	agctcggacg	aacccaaacg	ggataacgac	2160
ttcggcaacg	aatccgtcaa	tgtcgtccat	cgaagaaagc	tcctgcaacg	gggctgatcg	2220
atacccaatt	tatccaacat	ggctgagaat	ttatacgatc	ctcggcattg	tcaatactct	2280
gtgcggaagt	accaggatg	ggccatgctg	ttcatcgaga	cgaactgcaa	ggttggtcgg	2340
gatttgtccc	ccgtggaaac	aataacgcca	tgaggatttt	ccagttcaag	aataatccatt	2400
agcgctcgaa	tgtcagttcg	tcgaagttag	tcggttcact	aatatcatag	ccgtactcac	2460
cgtctcggga	ttatagttga	tcattgacgga	gccgatagct	tccttacgga	tggtagccag	2520
agcattgaca	ccacaccagt	caaactcccc	gagctaccga	tacggtatgc	acccgaaccg	2580
agtacaacta	cggaacgttg	tcgtctcata	ggctacatca	tgacgatcgc	cactatacgt	2640
caggtaagat	agttcgtatg	agcaggatac	tcgctgcaaa	gcgtatcgat	acgctaacca	2700
ccggtaggat	tcccagctcc	tttcgcattg	cacgtacctg	attggtgcgc	ttccatcgga	2760
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caagggtaac	gtaccataga	gtttttccag	aaaccagcga	tcgatcttag	tcagttcatg	2940
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tgctagaggt	ttttcaagaa	ttcatcgaaa	atgaacattg	tatctacagg	gcaccgcatg	4320
cttcgggatg	aaactgtgca	gagaagaaag	gcttgctctt	gggcgaatac	cttcgttcgt	4380
gccatcattc	aggttgatat	aaagctcctc	caatcacttc	cgagagatgc	cggatctaca	4440
gcaaattccgt	gat					4453

(2) INFORMATION FOR SEQ ID NO:1033

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2571 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...2571

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1033

gaaaagtgat	atgcttcata	atcccagcct	gcttaatcca	ttttttcaag	gataattgat	60
catactgcgc	tgcaagcctt	tgaagacttt	acccgatgtg	gctctccaca	tagttcataa	120
gcttcataac	tgattgggag	agtagctcgg	tagaggtctt	ctgtgtcctg	atgcggatgc	180
aatagccttg	gtcagggcaa	gagtgaatc	ttcccacg	agattgagaa	tatcgctgat	240
gcgtaccccg	taaggcaaga	gaagagagaa	gctcttttca	gaacatcatg	ctcaagggtg	300
tctgagcaag	tatcttcact	tcatcgagtg	tcaaatactc	tttttgacct	ccttagcttc	360
tatcttatct	aaaaagtcac	tgatattctc	cctagccact	tatctcggtg	cgcaatcttc	420
agtagccccc	gaaaagtggg	aagtagccag	atgcagagtt	tgtggagact	tttccttttc	480
gtttgagttg	ttggcggttg	gaagggtact	tgcgaaacct	tggcatagct	ctatcgttag	540
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tttggtcttt	ctttcgacac	attttcaaga	agtatgcagg	aagtcggttt	tcatttttagt	660
tcgatcaaga	aagccaaact	cttcagtata	agcgactgta	cacggataca	tcgaatagct	720
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agattagatg	ccgagatact	cccgacggct	catttgcag	gtttcgggat	tgccacagct	840
ggataataat	cgagatagag	cgatatacgc	ccgtttctga	tactctctgt	cggagcggtta	900
ctttgggaca	agtatgtctc	atacaattgt	tattagaggg	ttatatattat	tgattcagtt	960
gcaaaaagaat	aaggtgataa	aggggtgtccc	ataccaccaa	caaataaact	atcgagtgat	1020
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gctgcttcga	catgtttggt	ggaatgtagc	ttttaccctt	gactttcttt	ctggggatgt	1260
tgtgatcaga	gatgagttgt	aaacggctgt	gagcgtcata	tcgaatcttt	cttgtatctc	1320
cacgctgtac	accattcttc	gatatgagaa	gcaggagcct	gttttagcaa	atggcatcta	1380
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tatagttccg	taattacgat	gcctctctgg	gctgtcggtt	ctcataaggt	cgctctgcca	1560
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ctatgtgagc	aatcttggtg	gtcgtcttca	aagctataaa	ctcctggttg	caatgctcac	1860
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ttggtgaata	tgattatcgg	ttgtaatcag	aaattacttg	ccgatgcaga	agtggggaag	2160
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cattcgccga	agggcatcga	aagctcccg	aagagctgat	gatggcgggc	attgctcaca	2340
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ctctatcccc	ctaccctcac	gagctgagat	gaatatcggt	ttcgtggggc	ggagagcttc	2460
gtttgcagag	tctcgctgag	tccgattcgg	tcggcctcgc	gaggetttcg	cttttgttta	2520
caagtagaat	gaggggttcgc	tctcccttc	gtcccaaatg	ctggataaccg	a	2571

(2) INFORMATION FOR SEQ ID NO:1034

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2800 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...2800

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1034

ggccgggaat	ctgcgcacag	cccgttatat	gtcttggtcta	tggcattgag	tcctgacgtg	60
ctaccgtgat	tctgttttcc	gtaccctcaa	gttgcaactgc	agatcgcgga	aattctgggtt	120
agccttgaga	tcggggtaac	gctccacacg	accatcaaac	gggacaaggc	actcgatagc	180
tgatectgtg	actgctaaac	ttagccaagt	tctcttccgt	cagattgtcg	gcattgatat	240
tcgcacagtg	gctttgctac	gtgcttcgat	cacggcagta	agcgtttcgc	tctctgagca	300
gcatagcctt	tgacggtctc	tacgagattc	gggatcaagt	ccaacgacgt	tgatattggt	360
tttccacttg	actccaagcc	gtattgacgg	ctcctgcttg	tccacgaagc	cgttgtattt	420
gagcacaccc	cagctaaata	gaggacaaaa	actgcaataa	tggcaatgat	gattactggt	480
ccttttttca	attcattcta	tgtttacgtt	actattaggt	ttatctgaat	gtactacttc	540
gacgtctgac	aggcggtttg	tctttcttga	ccgaccagcc	gaaatagcga	gaaagtcccc	600
aagcgagaag	tattcgccat	gcgaatatgc	cagcaggttg	ctttctccat	atcgaaagaa	660
cctgtctccg	ggttgatata	ttgttctcgg	cacggatatt	gaccacatcg	gccataaaca	720
tgatcatggct	accgatggaa	tgacctgtcg	taccttgcac	tctatgctga	ccggcgattc	780
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agtcaggttc	aaaccgaact	cgccactctc	ttgatgagag	cataggagtg	acgctccggg	960
cgaataactga	catagcacat	ggcggctggc	tgcatatcgt	ccccacccaa	ctggccgtaa	1020
gcaaattata	tcctccggcc	gggagccaca	actcaccaat	atggccggta	gcggatagta	1080
agtggtgccg	gtttccaatc	ttgtctcatt	gtttcattct	tagaaaatta	cgcaacttat	1140
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ctgcgcaaat	tggtgccgat	ggtgatccgc	tgtecaaatc	atccagttgc	aggagagtag	1500
ccaccttgaa	cagtttctgt	gggggatatg	gtctatcacg	atgccgtttc	taatcgcggc	1560
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gcgttggtga	tcacctcttc	gtcgaaatgt	ttggtttccg	tataaggcag	acatgctctc	1920
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agggcggaag	tgcgacatac	cctctatcaa	gaatggatag	tacgtccata	cttgagatcc	2040
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gaacactggg	caatagatac	gatatgcttc	atcttttaag	agtataattg	attgaatgat	2520
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tcattcttga	agacgtatga	acgaacctcc	ccagctataa	tcttcgttgc	agttgagccc	2640
cactatttga	acacgcccac	cgaagaagat	agcatcttac	ccacggagga	accgcccctc	2700
ccgcaatgac	cgaagcacga	ttgaaagcgt	cttcggagggc	attggcagca	tctccacctt	2760
cagatcattg	agcttggtgt	agtaataggc	ccgacggctcg			2800

(2) INFORMATION FOR SEQ ID NO:1035

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2548 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...2548

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1035

aaagaggttt	atcgctttga	cttatatcta	tggatcggc	cgcagtagtc	tattaccatt	60
tggataaagc	cggagtagac	cgcgatatca	aggttaaaat	tggtcggatg	accaagctgc	120
tgccattcgt	gatgttatcg	gtgccggtag	aaagtagagg	gagatttacg	ttctgagggtg	180
cagttgaata	tcaagctctc	atggatatcg	gctgctatcg	tggatttcgc	catcgtatcg	240
gtctgtctcg	cgtggccaga	gcacaaagaa	caatgccgcg	acacgtaagg	gcaaaagaag	300
actgttgcta	ataagaagaa	agctactaaa	taataaagat	tgaatggcaa	agaaagcagt	360
cgcaaaaaag	aaagttgtaa	gggtggaagc	aggggacagg	ctcatattca	ttcttccttt	420
aacaacatta	ttatttcctt	acgaacagcg	aaggtcagg	tatcagctgg	tcttcagccg	480
gtaaaatggg	tttcgttctt	caaagaagaa	tactccctat	gctgcccaga	tggcagctcg	540
gattgtgcc	aaagtgacata	tgatatgggc	ttgcgcaagg	taacgggtcac	gttaagggcc	600
cgggtaatgg	tcgtgaatcg	gctattagaa	caattcagga	gcgggaatcg	aggttatgga	660
gattattgat	gtaacgccta	tgctcttaac	ggttgtcgct	ctcctaaaaa	gagaagagtt	720
taagagagaa	gatctctaac	atttcggacg	ctctatttta	tgggatccga	attctttcgg	780
tgtaggattg	cctataaaact	atcaatctct	cacatagcaa	tcgcggctgt	accgaagcat	840
tctgttcata	gaaaagcatc	tgacacaaaa	tgcaagatat	acaggcccta	ttctttccaa	900
aatccaagat	cgcgcgtaag	tttggcgatc	catctttggg	gcagataaag	gttaagggcc	960
gaagaattat	cctccagggtc	gcatggcaat	aaccgtcgct	gtaagacgag	cgagtatggc	1020
ctccagcttg	tgaaaagcaa	aaagcaaaat	atacttacgg	tgtattggag	aagcaattcg	1080
tcatttggtc	catcgtgcac	agcgcgcaaa	gggtgtaacg	ggtgagtgct	tattcagttc	1140
ttggaagcac	gtttggataa	tgtggtgttc	cgtttgggat	tgccccgacg	cgttctgctg	1200
cacgtcaatt	ggtttcccat	cgtcaattac	cgtagatggc	agtgttgta	acattccttc	1260
ttattctggt	aagccggtca	ggtgatcggc	gttcgtgagc	gttctaagtc	cttagaggtt	1320
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gaacagctga	tcgttgaaat	gtattcgaaa	aatccataga	tcccatggca	atattagcat	1500
ttcagaaacc	cgaaaatggt	tgatgatgga	gacgtcggac	tcgatcgcca	agttcgagtt	1560
caaacccttg	agcccgggta	tggattatcc	attggcaatg	cgcttcgctg	aatactctgt	1620
cttcgcttga	agggttttgcg	attactgcaa	tcaagattga	agggtgtgagc	atgaatttgc	1680
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agggtgtccg	tgccggtgatt	tgaatgcaca	actttcaaac	tttgaagtgt	tgaattcgaa	1860
tctgtcattt	gccacctcga	taagtcggct	acgcttacta	tggagttttc	ctaaataagg	1920
ggcgtggcta	tgtgtcggca	gaagagaatc	gcgcagagca	aatgagcttt	ccacgatagc	1980
gatcgactca	atctatacgc	ctattcggat	gtcaagtatg	cggtagagaa	tttccgcgta	2040
gaacagaaga	ctgattacaa	aagctcctga	tggaaagtgc	cacagatggg	tcgatccgtc	2100
ctgtagagct	cttcgtgaag	cagctcaaat	cttgatatcc	cacttctctc	tgtttgagag	2160
aataagatag	cgaatagata	tgtggatata	gtcgatactg	atgagtcgat	gaagattctc	2220
tgcatatcgc	tcaactattg	aagtcaaagc	tttcggtctt	gacctgtctg	ttcgtgccct	2280
caattgtctg	aatgcagccg	gagagatacg	ttgggcgatt	tagtgagttc	gtcacggagc	2340
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cacgctgaat	ttgtcgtttg	ggatggatat	cagtaagtat	aaattagata	agactaagaa	2460
cgatgagaca	taataagaaa	ttcaatcact	tgggcccgtag	gctgctcacc	gtaaagcgat	2520
gctgtccaat	atggctgctt	cgttgatc				2548

(2) INFORMATION FOR SEQ ID NO:1036

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2737 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...2737

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1036

tgcgtctttt	attggtttgc	caaatatcgg	taaaggtgtc	ttccacagt	caatcaaaga	60
aaagaccgtg	tagagcagta	cgataagacc	gacaccgaga	agataaccgcc	ttgcacttgt	120
gccagatagt	tttccacata	gcctaatect	gttccaactc	ctgctgatga	ccaggggagat	180
attctttgag	ccaatctgta	ccacctgctg	aataccgaaa	cccttgcaa	taccgatcag	240
gacggaagca	tcggtacgat	ggagaggatc	gtacggtaag	tgagagcaga	tgccgtgtag	300
ccagatcatt	ttggataaag	tagcggatcg	tgaggaaaac	agattgaaag	aattgatcat	360
caaccgactt	ggtaccgaaa	cctcttcgtc	cgtatgcgcc	acatatctcg	ggtgacaaaa	420
agaatcattc	ggtttatccg	gtggaccacc	gcctgaaaaa	gcccttatcg	ttctttttct	480
ctttctcgtc	atgctctctt	tcatacaaat	caatgagtta	aataccgttg	gtaaatcaag	540
tccggcatat	ctcaccctaa	ggagattgcc	gaagaaagag	gaaaaaagag	cagatctgta	600
agccgggttc	tgtactcacg	gccacacgta	gccagaggtc	tgtcatttat	cttgcccggtg	660
cgtcaccgca	tggctccagc	gatctacccc	cggcatcggg	cgagccaccc	tacatgcgcc	720
ggtatacatc	atcttcaacc	catcagacgt	acggcatgca	gcgtcaccgc	tgcattccggt	780
aggccttacc	ccaccttctc	acccttacct	tccacgtagt	ccgtaccgaa	gcaagacaac	840
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aggaaggatg	gtgctctgcg	ttgcccggac	gtcctcccac	tctcgaaaga	gtgagcgaca	960
gaccgatctg	ctgctaattc	ttcttttcgtc	ttctatatct	tatctatgtg	ccacctctac	1020
gaccttggtg	gatcaagatg	ttcattgcga	tagtccactt	gctctaccac	tcgggcagca	1080
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cccgccttgg	catataccct	gcaccagcgg	aatctgccga	gcaagggaat	attcaactcc	1200
tcggctaaat	tcttaccgcc	atcaccccca	agatgtagta	tttgttctgt	ggcagttcgg	1260
ccggtgtgaa	ccacacatgt	tttccaccaa	accgagtacc	ggcacattga	tcttctctcc	1320
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agggcattgc	ctgccatact	ccgcgccaga	gaacagcatt	gtccggatcc	acgaagaatc	1560
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gatttgatga	atggatcgtt	cgtttgtcgc	aatatgagtg	aaacgatacc	ttattgccat	1980
cgattctgat	atcgtcctct	accattccgc	cgaaaccaa	tcttttcctg	tcccgggata	2040
gcgaacttta	ccaagggctc	gagaataaga	ttgggatata	atgttacgta	tgccatgttc	2100
tgagtagtta	tttattagga	aggaactgcc	tgacttcttc	tgagagcgatt	gtaactcggg	2160
agctgtcagg	ttcgatttca	atatcgggtt	ctcgatactc	gcagtaggtt	ctcccaagcc	2220
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atgccgagga	tttcattctc	taccatcctt	tgccgtacag	atcatccgtt	atctcgtgta	2340
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ttcagatgga	tacgtccccc	ccttttcgagt	actttgtcat	agagcgagag	aaccgcgttc	2460
cggtcagtcg	cttgccactc	ttcttcatct	gcggtatcgg	aaagtgatcc	atatttcggc	2520
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ttggacatcc	cttcttgaga	gactcttttg	caccggccca	catgcgagct	cctttgatgt	2640
cgatgcgata	aaatttttct	ccggaaaccg	ccttgcccag	acctaccgta	tattccctct	2700
cccgcacccc	agttccaaga	ctatgggatg	atcgtttg			2737

(2) INFORMATION FOR SEQ ID NO:1037

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1228 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1228

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1037

atgtaagctc	ttcccgaattg	aattcttgtc	cacttccgga	tcggtttgat	catctctttc	60
aagagtccgt	tttcattata	gactagtttg	tcgtgcgcga	tcgccccata	cattggccat	120
aatgtcgaag	aatctatata	cgctttgtca	gtttcatata	ggcatcgtag	gaaaaatcga	180
tacggatata	ctctataact	cctgacttcc	atcttttaggc	gagtatctgc	tgaaatgagt	240
gatataccct	tgtcatcgcg	gacaaattcc	cattttctga	caggatatctg	aacgttccat	300
cgtattcctc	ctcacgaatc	atatatccgc	cttcattgaa	aaaaatcgtc	tttcgtgttc	360
gatctctccc	gaagactcat	ccaccgaata	gacctttgca	gacggttgtc	gactccgtat	420
tcgtaattag	agtaggagga	gagctttttt	cttttacaat	cctgtgtttg	aattgctgcg	480
gatcggcatg	aagtaatttg	gagccattgt	ctgagcatta	gcgctccaaa	tccatgcact	540
aagaaaagcca	cggaggccaa	aaaaagtttt	ttcataatga	tttttctctt	ggttattagc	600
gacggcaaaag	gtatcggccg	ccatcagaca	ggccaatcct	accttagggg	attcttttca	660
cttattttgga	tggaaattag	tatttcgacg	atatttcctaa	tagtttgctg	ttacctcttg	720
aggatattcc	ttatagtgtc	tcctatatgg	agacctttgc	acaacaagca	ggcattttat	780
ccatcatttt	attgtgtacc	ggccgattgt	tttgtgtgtt	tatggtatga	tcatgacaca	840
aaacgatggg	acgacaagga	aaatcatccg	acgagaagag	gttcattcag	ggacgtcatg	900
ccagcgaatc	gatacgggaa	agcacggaat	gatttttgac	ccaagtcgat	acgcttatat	960
gagaggatac	tatggtctcc	atgagaggat	actatggtct	cacatgagag	gatactatgg	1020
tctcctatgg	aggatctatg	gtctcctatg	agaggatact	atggtctcct	atgagaggta	1080
ctatggtctc	atacgagagg	atactatggt	ctcatatgag	aggatacatg	gtctcgcatg	1140
agaggatact	atggtctcct	atgagaggat	actatgtctc	gcgatgagagg	gtactatggc	1200
tattgatgga	agatgctatc	tgctcctg				1228

(2) INFORMATION FOR SEQ ID NO:1038

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1630 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1630

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1038

ggcatggata	tgctgaagat	tgacggcttc	acgtacaccc	tgagccgtaa	acggacataa	60
tcagcccctg	catctataat	tcgagctgcc	tgatcgacga	tgccgtgtgtg	tccatggtgg	120

acacattggc	catagattgt	atgcgaaggg	aaaatctccg	cggagaggtg	tatcacctat	180
ttgagctacg	gatgtctgcg	tctttttatat	ccgaacagat	cgagcatagt	cttgctatat	240
tcttttgattg	ccgattcgag	cggaacgcac	tcacactact	tcgaaaagat	aataagaaaa	300
agaaaggcag	actacagccg	atagcggctc	ataaataagc	cacgctatag	actgccgatc	360
ttttttgtgc	cgaagaccaa	cggggcagga	caggctttta	ttcgttttga	agttgtactt	420
cacctctgcc	agctcgcgat	tgctttaacg	actttttctt	tgagcgactc	cttataggcc	480
tccagtcgag	atagagagct	tcgtcgccgg	tagccatcat	ctggacggcc	aaaagtgtc	540
attctgggca	gcattgatcc	cacagtagca	acggggatcc	cggaggcatt	gaacgatggc	600
taacagagca	tccattccgt	caagagtggc	attgatggta	cacctattac	cggaatagac	660
gtcatggaag	caattacgcc	acacaatgaa	gctgccatac	cggcagcagc	gataattacc	720
ttgataccgc	gagcttggcc	tcgtgtgcaa	aagtctctac	ttcagccgga	gtcgattgag	780
ccgaagcgcc	aacatctcga	atggaatctg	catttctatc	agcatttttg	cggtttctcc	840
ataatgggca	gatcgggaagt	actacccatg	atgatgctta	ccaaggctgc	atttattgag	900
ctatcagttt	ttcgtattcg	gcagcactca	gaggttgctg	aagtcggcag	catttgacgc	960
cttaaccttg	ataatccaac	ggcacccgtag	ggatcgctgt	ttacgagttc	gggttgctct	1020
tccagatcag	gttcacttcc	aatacctcgc	cggcgatagg	catcatcagg	tcggaaacgt	1080
cttcacagct	tcgatcgatc	cgaaaacctc	atcagcctcg	agcgtttgcc	ttcggtagta	1140
acgtccacat	agacaatttc	gccaatttcg	ccttgacata	gtccgtgata	ccgatgaaga	1200
caacgtcgcc	ttcttgccga	gcccacatg	atccttagaa	tacttcagtt	ctgcaggagt	1260
tttcatttct	aatttcttgt	tgattatggt	ttgaaaaaat	gcttttgcaa	agttagtcaa	1320
agttacattc	gtacagcgaa	ttgctattcg	ttgtttttgc	gacttttagt	tcagaaaaac	1380
tatcctgttt	tattgggttg	atgttatttg	attactacgg	ggaaacggat	caatggaata	1440
taaaatggag	tagctcccga	agcaaattcc	actgccggca	aatgtgccgg	tcgtatccac	1500
ccccttactg	cgggcacctc	catccggatc	tcgtgtataa	tgtnaaaaac	cttcctcgtc	1560
gaatacattt	cagccctgtc	atatagtgcg	gcacttggaa	attgcgtatc	gacaatgttt	1620
catgatagca						1630

(2) INFORMATION FOR SEQ ID NO:1039

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 827 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...827

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1039

aagtagctgt	ggcacaagct	cccatatctg	tcattggcga	tacttctatc	gtgccacgga	60
tgaggagatc	aaaaagtact	acaacgaacn	caaagagtct	tcgttcagaa	atatccgtct	120
accatcgctc	agtatatcag	ctctcagtag	tgccgagtgc	tcaagacatg	gcaaattgcag	180
aagtggagat	gcagaagtac	gcaccgagat	gcaacagcaa	agcgatgtgg	aagctcttgc	240
ccgcaactat	cggacaagtt	cgtatctcct	tctttcctga	cttcggcgga	actcatcgca	300
tgaacctcgg	cgtaagcatt	accgaattta	tcaagactgc	gacccggggc	aagtcaatat	360
cccgatgttg	gagaataaacc	actattcttt	ggaaagtggg	tggctaaaaa	gtccggattc	420
gaatcgctca	atgtggcaat	cttgctctgg	actccgcaa	tctgtctaag	gccgacagcc	480
tttgcaacgc	ttgaatgagg	ggggcgactt	cgctgctgca	gctcgcacgt	tcagcgagc	540
cctacctctc	gtgagacagg	cggtgtactc	acgttcccca	accagtttca	caaatgccgg	600
atagcactat	tacagaggct	atggctcagc	agctgcactc	gacactcttt	ttagcgttcc	660
atcgaataga	gtgatcaaaa	tgaatcggat	aaattcgttt	tcctggccaa	agctttcaat	720
cccaagccgg	ctgtaataaa	tacaaaattg	cctatatcgg	agtagatgct	aatttttctg	780
atgaacatac	aataagaagt	ttatggagct	gaacgagatg	ttgaact		827

(2) INFORMATION FOR SEQ ID NO:1040

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1765 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1765

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1040

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gttgccagca acctccctca gaactgtgac tacttggtta tttacgatgt atgttcaacg      60
taaatacaaca accacacgac gaaatcaaac ggctgtgcaa catagagcct tctacaacgg      120
ctttgatgta gctgctgtaa gtataaagac gtattgaata gcttcccatc aaatgccacc      180
tcatacatca acgaaataaaa ctgaaaaaatt tcattcgctc agtttacaac caaagcaatg      240
cgaagggact ttagatggca aactgggata cgtgctactg atcggaacac cattagcaaa      300
tatttggctg acactgataa tacaaaagtc ccaacctctt ttatcataat gtctccttaa      360
ttccaagtca tccaactttt ggttccatat gccctccgac tattttttta gttgtgtttc      420
gcccttgat actgtcggcg attgtttatc ggtcgattta gcgtcaccaa tgctcatgaa      480
ttgcacaatc gattgaaaag actatcaaca aagaaatctc atataatcct attgcacaca      540
aaatattctt tacgcagaag ggaaaggctg cgatgctcca atcttacggt attcttaaaa      600
gaaatcgctt ctggttacac agtcaactct atcttaaatc taatcaggtc tctgcaatag      660
actcgatatt tgactgcttg aataatgttc ccatcatttt tattttaaca ctcattggaat      720
gccgactgtt tggggatagg gcagggactc gacgtcaata ctctaacagc ccgattgaac      780
aataatcttc gcagggatta tgtacgagtc tatcatgtag ttccggctgta gcaattcaac      840
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ttagggaggaa gcagagccac ccaatatgcc gttattttaga aggccctgtt cctccgtcag      960
aattttatga atatttacct attctttata tcacaatctc tcgactgttg ttggcgaaat      1020
gttgetatct ccattatcaa tactaattct gttgatacgt attcgaaatt caacttcatt      1080
tgcttggcga ccttgcacta aacattatgg ctcatggcat ggaggttgta attgtattac      1140
actaccaaac aacaccatta taagcagtcg gataacataa aaaatgggtg ctgcctaaaa      1200
ataccggaaa aaggagtttt gcatttacta ataattggctc catacaagtc atgtccggag      1260
gaactctgga aatagcaatc aggcataaat atccggagag accggtgcta accccacctt      1320
tataccgttt acggcgatgg tcttgcgatt aacaagcagg tagagataga catatagacc      1380
gacttaactt gttttctacg cattcggtca tgcccaaatt tattttgaca gtgtgaaatt      1440
caacagtgcc ccgctgtata caacgaactg attgtggaga taagcaattg cgaatttacc      1500
aatcgaagtg acattattta aagaattgtg acctaaagct tgaaaacagt atgttttagca      1560
gttcggggtg acggtattca agcctatggc tacaagctcc atcaccggat tatctacaaa      1620
gcaaagatta ccgacaatac tttttttgcg acaggaaact tcgcctccat atcacaaaca      1680
cgccaggctt aacagcaacc tccaatgctg ccattcagtt gacaatattc ctgagtatta      1740
ccatttccgg aataaaatag tcaag

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(2) INFORMATION FOR SEQ ID NO:1041

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3343 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...3343

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1041

gttcacttca	ttttttttga	cacagtccta	tattttctga	aaaagcttca	tttgatcctc	60
aaggctttgc	ccggagtcaa	aattttactc	ttgccaatcc	attggtagca	cagagtttct	120
gaacagaagt	gccgtgcctt	ttggctatgt	ttccaaagta	tcgccttttt	tgattctata	180
ggtcatagga	gaagaacttg	tctgcctttc	ttcccttttt	ttgcatagcg	agaagaagtc	240
ttagagcttt	tgcatagcga	gaattgctcc	ctcgtttgaa	tgtgtaaatg	tctcgagcgg	300
cactccgtta	tcgaagtcta	taatggtagt	cggattgatg	ggatacccat	gaagcgggtc	360
tcgaagtga	gatgaggacc	ggtgcttcga	ccgtgctgcc	tcctaataccg	atcggttgtc	420
ctgctcgaac	gatctgattc	tgtctaccaa	ttggcgactc	atgtgtccgt	acacagtcct	480
cagtccgttc	gatggcgcaa	gactatgtag	tagccatagc	cacgcgcttc	atagctgcga	540
cacgaacttt	cccgtcaaag	gctgctcgta	tcgtatcgcc	acgattcatg	aaagatcaat	600
accatagtg	atccgtccga	aacgccgacg	gtagccaatt	gagaggtgac	ctgcttatct	660
tcgacgggca	tcacgaacga	agagcatcaa	tgtcatagga	gttcggaatt	tcgacatcgg	720
ttcctgcacc	cacgaagggt	ttacatactc	gctccaagaa	tcttcaccat	ataaatctat	780
ggcaggtaat	tgagtgtctc	catcgccagc	cgattttcat	attcggtctt	tctacctctt	840
tttcggaaga	aatcttgttg	cggaactcca	gccgatctgc	aacatgttgc	taatgtaccg	900
tacagagtcc	gagggctttg	tacgttcggt	cttgctttgc	tgttcacttg	gctattgcgc	960
acatttctga	cgggggtcac	gccttcgtag	cagaaatgaa	gcacagcgaa	cagcaaagca	1020
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ctacgttgaa	aggtcgtgga	aaacaacgct	cccagagtctg	cccttgaaaa	attcgctcca	1140
aagttgtaat	aaaaaatccg	aataaccatg	catttgtaag	ttattttcgt	tctttgcaca	1200
cattttgcct	tcgagtgcag	ggggtgtctg	ccttgtagat	caattctttt	ttttgcccaa	1260
tatgtaatgt	ctcatggcaa	aaaatgtact	tcaaagactt	ctgatcaaag	gaggatttta	1320
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ttaaactttgt	tcggaatatag	cctctgaaaa	aacgaatgga	tttgtaagta	tgcccgataa	1440
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aatttgaatc	tgaccctttc	gccggagact	tcgtctatct	gataggctca	gtgggatcgg	1560
ggaagagcct	ttgctgaagg	ctttgtatgc	tgaggtgcct	atctctgccg	gttatgccgc	1620
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gacgaaccca	caggcaacct	cgattcggtg	accggattgc	gatcgcttct	ctgctctacg	1980
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cgaccaattc	gcttgctgaa	atacctcaca	ccttgctcaa	cgcaatgtgg	cacaggccaa	2340
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gcatctttgc	cgatgataga	ggctcatccg	gatgaggata	tgctattcct	gacgggggtt	2700
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ggacgctgat	ttcactggat	accgaaaagg	attgtatcag	gccgttgctg	ccaaggatgg	3060
cattacgggt	atcaaggtaa	agagcagaac	aaactccttt	catggcactt	tatgcgcaag	3120
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attggagatg	tgacggctga	taaggatatg	gtcatcatct	gtacgtaggc	gatatggagt	3300
gggacaatgt	gggcttcgag	gctcgtatca	tcatgcgctg	ggt		3343

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 591 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...591
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1042

```

ccaaaaggaa aagagaaggt gatatgcttt gatcatgcag aaagagggca cagagggtcgc      60
ctgtgttttt ttctactttt tggattgcat aatcगतtagc acaaactgca tatggtattc      120
aactttctga tagtttccga tgaggtgaag atttccgcg agagatagcg atcgactccg      180
aagctacctt ctcgactcc aaaatgcgat tctggactcg gtgggctatt cgcacagcga      240
gctaagtctt ttttctctg cgatgaggac tggcacaagg ggcaggagat tacgtgatgg      300
agatggacac ggcctcggat gaggactcgt atgtgatgga gaaacacgct tggaagagtt      360
catcgaggac gaacaccaac gtctcgtctt cgattcgact tgatgacgga gcgttacttc      420
tttatcgaag tgatggatat ataccgggca aatcgctctc ggagcctaag ctcccttacgt      480
cggaaggatt cctccgcaac aaagctctct ggacgatctg atggatccga ctgccattca      540
accaagcaag cccgggggatt ggatctggaa naanacttct tcggcgacgc g              591

```

(2) INFORMATION FOR SEQ ID NO:1043

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1306 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1306

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1043

```

tcgatgataa tggaaagcct ttctcccaat tgtataaatc gctccacgaa gcgggaagat      60
tgagatcaaa cgccacgacc cttacttcgg cggttcgaca gctatagctt cgtctaaaag      120
acggagcaaa gcctctacag catcgaaccc atccaagaga gtgcagtggg agctttcggg      180
tgagtaggta caaagtgatt cccgacttcg agtccttcgg caacaatgca gccactcctc      240
ctccaccgaa aatctatcga caaaagcctg agacgaaatg aatccgcgag tgaagccaca      300
tcgagacaat ccgggtaggt ctcgcgatgc aatactacct ccatcgctgc tcctcccat      360
aactcaattc atcataatag ttcataaaaa cggttttacc acatagacga aagctccggt      420
tttatctgca ttgcgaggaa atgtaccag cgaaacattt ggaaaggaga caaaaggag      480
gacttggcca ttacacaca gttccatcct gattgaggaa agaaagcctg ttcttcaaac      540
atagtagcga tcgccatccg gctctttgta ctctatggaa aaaccgacaa atcccgaggg      600
ggacgcccct ttttccaatt catggccaaa agaaccagcc gtctcctcta tatactttca      660

```


aggaaaatac	agccttttcg	tttttacggt	caaaataaaa	tcttctgaat	actgtcccat	720
aatcatattt	gttaagggtca	aatataatga	aagaatgttt	tgaaaaccaa	tatgaactgt	780
tgacaggagt	ttcattgagc	tcttttgctg	cagagcagat	tcttagtgtc	ttcggaaagg	840
tcaaacctcc	ggtatatggg	cacaccaagc	aaacagaaat	ttcccaagtt	tccattagag	900
aagtactcct	ttcctcgtca	aataggcgag	aataagaaac	gattgtcagc	tgattcttgc	960
ttcctgcatg	atgcaggacg	gattgtcagc	tgattcttgc	ttcctgcacg	atgcaggacg	1020
cgattgtcat	tgattcttgc	ttcctgcacg	atgcaggacg	cgattgtcag	ctgattctgc	1080
ttcctgcacg	atgcaggacg	cgattgtcag	ctgattcttgc	cttcctgacg	atgcaggacg	1140
cgattgtcag	ttgattcttg	cttcctgcac	gatgcagacg	cgattgtcag	ttgattcttg	1200
cttcctgcac	gatgcaggac	gcgatgtcag	ttgattcttg	cttcctgcac	gatgcaggac	1260
gcgatgtcag	gctgttcttg	cttcctgcac	gatgcaggac	gcgatt		1306

(2) INFORMATION FOR SEQ ID NO:1044

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 811 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...811

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1044

gtcgatgcaa	gccttgtgga	gacgccacat	aaacccaacg	gaaccattag	attgaagtcg	60
cagacgacag	agaagacaat	cggagcgagg	cggaaaaaag	gcagaggagg	attatcaaaa	120
acaggttgtc	cgccggcgta	aaggggacgat	gaagaagccc	gttggtgtga	caaacaaaag	180
cgttatcact	acggatcaaa	aagcattgtc	tgaccaatgt	tcaaggcatt	gttcaaaaagg	240
tgatacgact	gcagcgaacc	gcagtgcac	gaaggagttt	attccgctat	tgacgggtgca	300
aacatacctc	aaggcacagc	cgtcttggcg	gacaaaggat	atgttgcggg	gaaaatcggt	360
cctacctgca	aacctatcac	cttcaagacg	gctcatgcac	aaggcacaac	gcaacagggc	420
attgaccgag	gaagagaagc	aggaaacaaa	gcaatcagtc	cgatacggag	caccatcgaa	480
cgcacctttg	cagtattcgc	cggtgggttc	atggcgggacg	atgtcgatac	cggggacttc	540
caagacccat	actcaaaaac	ttcttgaaag	catcgccttt	aatttataag	aaccccgggg	600
ataattatgt	cctcatctct	aggataaggc	ataacccctt	tgaggagctc	gtgcaagtag	660
ctccgcaagg	ggggattttac	aactacttca	ctccttactg	ccaccctttt	cactcgctcc	720
ttttttgcca	agaaccctct	tccctccatc	tccttatttt	gcaaagggtct	ccataatgga	780
tactgttgca	tcccgcncca	ctgtcaactt	t			811

(2) INFORMATION FOR SEQ ID NO:1045

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 650 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...650

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1045

```

ggcgaagtgt tgttcgagtt cggatagggt ctgttcgttt gtttggaggc tttgatgatc      60
tcgccttttt gcagtactac gatgcggctg ctgacttcgt cactgtggtg aggtcgtggc      120
tggagataag catggtggta ccgtattggt tgcattgtcg ttgagcattt tcttcagccg      180
tatttgtgag gaaggacgag agccgtgaac ggttcgtcga ggatcaatat atcggggcca      240
gagagatggc agcggctatg cctatcttct tttgattccc tttggaaaaa tcccaatgag      300
tttgttcttg cccaaaactt catcggcaaa gaggggacac atgagtcgag aaaacgctct      360
atctcctgct tgtcgagggt gtggagcttg ccataaaatc gaaatactcc tccggacgca      420
ggaagccgat gaggaagctt tgtcgaggaa ggctccgaca cggcccttcc aatcgtcact      480
acccgctacg ggatgtcgtc gatggagatg ctaccgctat ctgctttgat cagatcgaga      540
cgaggcgga gagggtagtc ttgccggcac cgttattgcc taccaaacga aggtttcgcc      600
gtggccttat gagagatggg gaatatccag tacggtaccc cattgtattt      650

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(2) INFORMATION FOR SEQ ID NO:1046

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 599 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...599

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1046

```

gatacgaaaa aactccgaag ccaagtagtt caccgtttat cagagccggg cgtagccatc      60
ctattgctcg gctctgcgaa ctgcttggct tcagccgtag gccttttata aacgtcatct      120
caacgattta gctagggcatg aggaggagtc ctatgcagta gtatcatcca atattgttgg      180
cacttaagac aagcaggcac ctacctcaag ccggcttccg agagctcatg gtgctttgtc      240
agcaaacttc ggccccaagt tcacgcttgg ggcgcgatcg ttttgcgccc tactagacgc      300
catggtatga tgctgcgcaa acggtctgtg cgccctcgga caacaactct cggcataggc      360
tctacaagta tgaagacctg ctcaatacag agctaagttt gtgcctcaaa gacctgggga      420
actccttgta gcagacatca ctacgtggct taccaagatg ggtttgccta tctctcccta      480
ctgaccgatg ctatagtcgc tgtatcgtag ggtattgctt acatcctacc ctagaggtta      540
aggctgtttg aatgctctac atcaagcctt tgctttctac gatcagcaca aattgatac      599

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(2) INFORMATION FOR SEQ ID NO:1047

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2033 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...2033

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1047

caatcgcata	gacatataag	cctgatgatg	ttctgtccgg	aataagcaca	attaatgtgt	60
tagagatcct	aattgtagaa	ggaagagacc	aaggatacga	gtacgacctt	tcaaatacga	120
caaggagagt	cgaggtcatc	gatctgcatt	gagtcctgat	cttcccaaac	aaggggggaa	180
aatgaatttt	gaagaccgaa	attgggaaaa	tttccaaggt	cgttctcggt	ttactttaat	240
tgctctaattg	tactggtaat	tagcatgttg	taatgagcac	cgtagcccta	cgctgtctcc	300
tgcacgtgc	aggagtgcac	cgtagcccta	cgatcgtaag	tgttcgtaac	ggcttttcaa	360
cacttcttcg	tattcctcgg	cataatcttc	aactcgtacc	aaaagggtatt	gcctgagagc	420
gtaggagagaa	aagggatggg	tgcggtgaaa	aaagatgccg	tactccgaca	agatttgttc	480
ggatgggttta	aaagggtggag	tgacgggtaa	gaagagtcgg	ttagccgggc	aatccgttgt	540
gcggcagaaa	ttttgaaggt	cagttcggga	acaattttctg	tgagattggg	gaagtgaat	600
agggaacact	tctttccaat	ttattggcgc	gcaggcgctc	taatgatcgc	gaccgttcag	660
gtaggccatc	agcttctcat	gcgtatgtag	ttaccccaga	gttcttgga	aactgacgct	720
ccgtcttcgc	aaatgcctcc	tctccaagcc	ggacaatcgt	agcagccaaa	gcaccggcga	780
acagcaatcc	tcctgtactca	tcctgttttg	ccagcccgaa	gccagtacca	tgacggcttc	840
tgcttggcga	tacaatagcg	agcgacagct	tccagattga	taaagccccg	ataataacgt	900
gcaaggctcc	ggcaactatg	tcggcagcgc	ggtaccggtg	gtcgctcgata	gtacgagctg	960
tttcccctct	accgcctggc	agtgtactct	tcgggagcat	tgccgaaatg	agcgaaaggc	1020
aatcgcttct	tcctcgctcg	cctcctacga	ggaacccgtt	cccggcatag	atttccgctc	1080
ctcaacgggt	gcaatcggga	tgatgcctac	ggcaccgttc	atcagtgcgt	tgtgatgggtg	1140
gtaccggcac	ggaagatatc	cacgataaca	accgtgactc	ttcttgctcc	gtcttgtaat	1200
atggatagag	tacaggagaa	ggacaagact	gatctgcagc	atctgctatt	cttagtattt	1260
ctcgaggaat	gtctcagagc	tttgatgaaa	agctgggtct	gagcaggctc	ctgcgtgggtg	1320
attggacgta	ggattcatcg	agaccacgga	aattggaagc	atcccgaatc	agatattata	1380
ttcctccagc	atatattttt	tcagttcggc	cgtgttcct	tcttgaggcg	aaggagggaag	1440
aacgtgggtgc	ctgaggggatg	tactttctaca	catcgaggcg	attcagggct	gtgataaaat	1500
ctaccgtatt	gcgttgccat	tgcggatcgg	cagagtgaat	tgtgcaggat	ggataaggat	1560
gaatttgagg	cctctatagc	cagtgcgttt	accgcccacg	gcgtactgaa	agccgcccac	1620
gcttcataaa	atcttttattg	gtacgatata	agccgatgcg	aagcccggta	tcccataggc	1680
atgactgaaa	gaatagacca	tgacaagggt	tttctcctt	tgatgtcggc	cggacgaatc	1740
acttctcgg	tcgtaaacga	tacaaggact	ggtcgaggac	gaatgtcgtg	tcaggatgat	1800
cgttgagcag	acgaggatct	ctgtccgctg	cagcagctcg	ccatcgggat	tgttcggggt	1860
acaagccagc	agaaatccat	attggaaaaa	tcagcctcgc	ctatgtcctc	atagaaggat	1920
agaagcagac	ttcgtgctcg	tacatccgac	aagcatcctc	tattcggcaa	aagaagggaat	1980
ggctatgagg	cttcgggctcc	ctctgaaagc	tgtgctattt	ggtagaaggc	cgc	2033

(2) INFORMATION FOR SEQ ID NO:1048

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2148 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...2148

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1048

agtcggccaa	ggatagtttc	tattgctgtc	ggtaaaaaa	tgaagattct	caaaacatac	60
tgtaataatg	gaatttactt	tactaccatt	tatacgtgtt	aggctgtttt	ccccttcgta	120
atgactcttg	atagaacagt	aatggctaga	aagggagatt	ttatttcgaa	tttcctaacc	180
gtccaaatth	ccccggcagc	aatagatagt	ttcacagcca	tgaaactaaa	gtttcgtagt	240
agtgaactaa	agttttctga	ctgtgaaaa	aaagttttct	aaccgtgaaa	cttctgaaag	300
aaacggaagg	aaaaatctcg	cagacttctt	tatttgagcg	ataggctccg	ggtttgccgt	360
ctttgatgta	ggcggttcag	gattttaatgt	cgtcgggttg	cagcggctac	ggtcgcagcg	420
gtacagctcc	gtgaagggat	cgcacgcagc	atcctctgca	aaaggctcgt	ttgggagggg	480
atgcctttga	ggcgaagtac	tgctcatagg	tgtattcgac	gaaagctgtg	gtaggcccgt	540
gccacggcgg	tcgaggagat	agccgtcggc	cagctccacc	ggagtgcata	accatcgcca	600
cgacgaagat	cggaaggggc	aggacgtgcc	accacatctt	tttgtcagcc	gagaggggtg	660
taggcacgag	attgcgatag	tcgcctgcgt	cttgtagatg	atgatcggag	ccaatgccat	720
agccggcgtc	atggggctac	tccatcgtgg	ccattgccct	cctctcctcc	gatgaggata	780
ggttcgggaa	atcgtttttg	ggcttctggg	tatgagtctg	cgtcatttct	gtggactgtt	840
ggtctgattc	gttctgcac	ccccactcaa	gaaaacgata	gcatacaagag	ggagaaaaag	900
attttacttc	tcattttcta	ctcgggtatta	ggaagagaat	cgaattttct	gtctgtaaat	960
tatcggaact	aaggtaatgg	aaatcctata	tcctataaaa	acagcacttc		1020
tatcgacaag	atatgaaaga	aagaatcaat	caactcctac	aggaaatcgg	tcagtgtggg	1080
ctgccaccgt	ggaggaagcc	gaagctctgc	gaatcaagta	tctaagcaaa	agggcgaaat	1140
agcccgctct	ttcgatgact	tccggctggg	accgtcgaag	agaaaaagca	aatcggacaa	1200
atgctcaatg	agctgaaaaa	caaggtcagg	agcatatcaa	ctcccttcgc	gagcgggcac	1260
aggcaggctc	tgcaaaagct	cggcagaaac	cgacctgaca	cgaacatcat	acccgacgag	1320
actggaacac	gccatccgat	ctccctgggt	aagcaggaga	tctgcgagat	cttgcccgcg	1380
tcggcttcag	tatcgccgac	gggcccggga	tagaggacga	cggcatgtat	tctcttcgat	1440
gaatttcgcc	gaagaccatc	ctgctcgtga	atgcaggaca	cattcttcat	cgagcatcgc	1500
cccgatgtca	tccttcgcag	catacgtcca	gtgtccaaag	ccgggtgatg	gaaaagacac	1560
aaccgcccgt	cgcgtcattt	gccccgggcg	tacctaccga	aacgaagcta	tctcctacgg	1620
gpgcattggt	tctttcatca	ggtggaagca	ctgtatgtgg	acaaggtgtt	tctttcgccg	1680
atttgccgca	ggtgcttctt	tacttcgcac	aggaatgttc	ggagccgaaa	ccaaaatacg	1740
ccttcgccct	tcttatttcc	ccttaccgaa	ccgtctgccg	agatggacat	ctcctgcaat	1800
atatgtgggg	gtaagggtgc	aacttctgca	agcatacggg	atgggtggaa	atactcggat	1860
gcgcatgggt	gatcccaacg	tattggacaa	ctgcggcata	gacagcaaga	atacagcggc	1920
tatgcgctcg	gtatgggtat	cgaacgtatc	accaatctta	gtaccgagtc	aaagaccttc	1980
gcttcttctc	ggagaacgac	ctcaacttct	ggaacagttc	aagagcgtgc	actaaccttc	2040
tgatcagtat	cgaatgcgaa	ggaagagcga	tacaaagccg	ttatcgattg	gtttgccgag	2100
aatatgcggt	ggccgaaacg	gagctgcggt	accgggatcc	tttccagt		2148

(2) INFORMATION FOR SEQ ID NO:1049

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 804 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...804

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1049

ggcaattatg	ctttattctt	aaaggatgtc	cgtcacgatt	acgaccaagc	gaggcatatt	60
acaagcgagc	attagcggcg	gatccgaatc	atgcgaatat	cttggaatt	atgccaatth	120
cttatataat	attcggttgc	attacgacaa	gccgagacgt	attacaagaa	agcattagag	180
gcagatccga	atcatggaat	actcttgggg	attatgccaa	tttcttatgt	gatattcgtc	240
acgatacgac	caagccgagg	ggtattacaa	gaaggcatta	gaggcagatc	cgaaaacgca	300
attactcttg	gcaattatgc	cttattctta	aatgatattc	gtccgcttac	gaccaagccg	360

aggcgtatta	caagcgagca	ttagaggtag	atcgaagagt	gccataaagc	ttggcaatta	420
tgctcatttt	ctcattacgt	gcgggggat	ttcaaacgtg	ctgatagctt	gattcagcaa	480
gcattcgaga	tgccgataat	gacgaagaga	cgaaaccctt	gcaggccaag	ttatggttca	540
caggatgctg	cactattacg	aggaatgggg	agccgaggcg	gaaaaagact	ggcggctttg	600
ctgaatgtcg	gagcgaaatc	catcggtctg	aacttggtccc	ggatatagag	ctgggtcgga	660
aaaacaagca	tccgcatata	gagcagtcga	agcctttgcc	aaggcattga	cagagaaagc	720
acagttaggt	tttgacgcat	tgccattcgc	tggtacttcg	ttggaacaaa	atgcgggtcat	780
ccttttccat	attgggttac	tcat				804

(2) INFORMATION FOR SEQ ID NO:1050

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3118 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3118

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1050

tgatggccaa	tagaacagct	atcgtcatag	cgcaccgact	gaccacgac	gcaatgcgga	60
tattatatgc	gtactgcatg	aggggctgat	cgtggagcag	gacgccacga	tgaactgtat	120
gccctgggag	gatactacac	gaagctagcg	atatgaacgc	agaatgagaa	aatgatactt	180
ttgtgaagaa	aagaaaccga	tgactacaa	gactcgcac	atatagcct	tggtgaaaag	240
caggcgaaaa	ccatcgacac	ctatgcctct	cgagctgagg	aaatacaaga	ccgcagctca	300
ggcgcatcct	gtcgagtgc	gcctacacat	ccaccgggtat	ccgtacgggt	tcaatcgcat	360
aagctcgaaa	gagtgttttg	ctcgcaacgt	actgttcg	attacgaatc	gacacaagcc	420
gaaatagaac	gaatgcttcg	tgcgaaaaag	acgtgctctg	tccggggcgt	tgtacatggg	480
ttgccaaaaag	agcggcacca	ccaatagcaa	aagcaagttc	atccccgttc	cataccgccc	540
ctgcactatt	gccattatca	aggggggaaa	gactccctat	cgttatacta	cgcaatagac	600
ctgacagtgc	tttcttcacg	actaaagggt	tggtactggg	ggcagtcacg	cccctgtatc	660
catgaatgcc	gatatacaag	tcggcgcttg	agtgccatcc	ttgtcgagaa	tatgcctgtg	720
ctcggcaact	gcatggcgta	ccctcgaaaag	aaacgctctt	gatggacgag	tggaacgaga	780
agctaaagcc	gtagtccg	aagtggcgca	tgtacgagtc	ggaagcttgt	ccgcgtaccg	840
tcttgatcc	ttgtcttgat	caaggatgta	ctcgacgcta	cagccgagag	actttgtcgg	900
atgtatggcc	ggaattggaa	gtatttttcc	agcggtatc	agctttgtct	cctatcgagc	960
gcagtatgag	aagctgatac	ttcttcacgg	atgcagtata	tgagacgta	taatgcttcg	1020
gaaggtttct	cggtattcag	gatgatccga	aggatagcgg	tatgctgctg	atgctcgata	1080
cggaatttac	tacgaattca	tcccgatgga	acatttcggc	cgccccgagc	ggaagccatc	1140
ccactcgaag	gagtggaaaa	agggcgcaat	tatgcctgat	tatcagtagc	ctcgaggagc	1200
tctaccgtta	tgtactgggc	gatacgtacg	attcacatcg	gtgaaacccat	acaagatagt	1260
catcaccggt	cgcacaagca	ctatatcaac	gcattcggag	aagagctgat	ggtagacaat	1320
agcacaagcc	tttgccggcg	acatgcaagc	gatttggcgt	gcaggcagtg	gatatacggg	1380
agcgccccac	tttttttcgg	aagagggcaa	aggacggcac	gctggctgat	cgaatttgtc	1440
tctgcaccgg	ctgatccgaa	tgcttttgcc	aagcattgga	tgccgagttg	caaacgctca	1500
attccgacta	cgaagccaac	ggtatgcaga	catgactctg	ctcccactct	ccctgacgat	1560
cgctcgctcg	gtctcttcca	cgattggcct	acggagcagg	gcaagctggg	aggacagaca	1620
aagtgcctcg	tctgagcaat	acaccggaaa	taatgaggtc	tatcctgaaa	tgaacagtta	1680
atcgcatctt	cccgattatt	ggcaggggga	gatgttcgga	acaaaagaat	caatgagtaa	1740
aaagaaagat	aaaagcaaga	ctaagcccg	aaggagagcg	ctcctcgcat	caaccgtgcc	1800
ggccgttagga	acagcgcatg	accaaggagg	agatgcgcaa	tgccattttg	gacatattcc	1860
aagcaatcct	cagagcgtga	tgaactacaa	gcaggtaagc	catctgatgg	ggtagaagct	1920
gcaccacaaa	agctaattgg	gaactccctg	atggaagaca	ggctgtggat	gacatcctgc	1980
atgagataga	gcgcggacgc	tatcggtaca	tgccttgga	ttgattgtca	taggcacttt	2040
tgagcgctcg	ttcaatggcg	caattcgttt	attccccgaag	ggggcggaac	gccatttttc	2100

attgccgaag	aaattcggca	catgccatgg	acggtgacaa	agtgaaagta	caactcttgc	2160
caaacgtcgt	ggtcgcgcgc	cggaagccgc	cgtgatcgag	atcatgaaca	gaagcaggcc	2220
actttcgtcg	gcaagatcca	aatcaataga	gacttgcttt	ccttgttacg	gaagatcgca	2280
ccttagcgaa	tgatattttc	atcccaagga	caacctcggc	aacgccaaaa	acggcgataa	2340
ggtaatatgc	cgatactcga	atggccggag	caatccaaga	atcccatcgg	agaggtagaa	2400
gcgtattggg	accggccgga	gacaacgatg	ccgagatgaa	tgccattttg	ccgaattcgg	2460
attgccttat	gtctatcccc	aagagggtga	agaggcagcg	accgtttggg	tggaagatc	2520
acagaagaag	agcttgcccg	aagagaagtt	ttcggtcgat	actcaccttc	accatcgacc	2580
cgaaggatgc	caaggactcg	atgatgccat	atcgttccgt	ccgctggagg	atgattgcta	2640
tgagggtggc	tacatatcgc	cgatgtctcg	cactacgtaa	ccgagggcgg	gatcaagatc	2700
aggaagcata	caaccgtgcc	acaagtatct	atctcgtgga	tcgcccatcc	cgatgctccc	2760
cgaacgcctc	tgcaacgacc	tttgttccct	ccgcccgcgc	aagaaaaata	tgcttatagc	2820
tgcatattcc	ggatgaatga	cgagccaaag	tattggatta	tcgcatctgc	cactccgtga	2880
tcaagagcga	cgccggttcg	cttacgaaga	ggcacaagcc	gtgatcgaga	ccggcgaagg	2940
gactgcaagg	aggccattct	caaactcaac	gagctggcac	agcgacttcc	aaagaacgat	3000
tccaaaacgg	agcgattgct	ttcgaaagaa	aagaagttgc	ttcgaaatag	atgagaaagg	3060
tcgtcctctg	ggtgtaatcg	tgaaggaagc	aaggaagccg	ggggccgatc	ccttaagg	3118

(2) INFORMATION FOR SEQ ID NO:1051

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 699 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...699

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1051

gatgaaaagc	tcttaagctt	ttgatcgaga	agtaaaaact	actactgata	ttctccaata	60
tagtatcctc	tttttattcg	atgaagtcga	tttttatctg	gtatcttggg	aaaggggagg	120
aagctttttc	tatgggtttc	atccaaagga	gtcggtcgaa	tcggttttga	gcttacttca	180
gcggaagcac	ctgtgttggt	gttgctcgaa	agggggggca	gatgagtcgg	actaatgttg	240
tattttggcg	catggaaagc	cgtttttaat	ataatagtat	atggaagata	gaagaatcct	300
tttcgcctca	gtgctttgat	gggtttgatc	tttggtgcat	tctgtgtctg	aagtacatct	360
gcgtgatgct	ggcattcggg	attcctttct	tgtgctgctg	tatatccgc	tcacttggtt	420
cgctcccttt	ctggcttata	tctgacaaa	cgttatcgga	acgtgctacc	gcaagaaatg	480
cgtttcagct	tatgcatgga	tggcagtttt	ctactttgct	ctatctcttc	gcggctgtat	540
ggtttccatc	cctcactact	atttctatgc	cgagataatg	ccggcacaat	gcccgatatt	600
atggcacagc	tggagcagtc	ctccgggctt	atgaccact	cttcggtacc	gatgagtggc	660
gcgaggtgat	ggagcagatg	ctcaagtgcg	tcccatgtc			699

(2) INFORMATION FOR SEQ ID NO:1052

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 748 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...748

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1052

aaaacaatac	gatcgaaata	gcccgtcgtg	ataccctgac	gaaggagacg	tccgattgga	60
tggtatagaa	gaaacagtcg	ctaccctact	cgatgatatc	aaaaaaatat	cttccaaaag	120
gctctgaact	atcgcaaaga	acatacatca	cggtggacag	ctatgaagag	ttcaaagaaa	180
agatcgaaaga	tggcgggttta	tccttgctca	ctgggatgga	acctccgaaa	cggaagaacg	240
aatcaggccg	aaacgaaagc	cactattcgc	tgtatcccgc	tgaatgggga	catgctccgg	300
gcaaatgtat	ggtgacgggc	aagccctcgc	cccaacgtgt	actttcgccc	gtgcctattg	360
atccgtcagg	ccggacatca	gtaaacaaag	aaccactaaa	aaacataaat	acttatggca	420
gaagaaatcc	aaatgtacga	catgcggcat	ccgtggcttt	tattcgcaat	ttcatcccgc	480
aggaattgaa	gagaaaatga	ccgatgacga	cattgtttac	atcgtcgac	tgatttacgt	540
ttctacgaga	gtcgcggctt	catggatatg	gccgaggaca	gcgaggaaca	gtggaggtgg	600
acgaagacga	gcttggtggag	tacgttgctca	agaatgcgca	cgggatgagg	taggccactt	660
ctctgccgac	gagatacgct	ttgtcggcaa	ggcgaactcg	aatactgcga	gagtatcaat	720
ctcttcgaag	aggacgatac	tctacttg				748

(2) INFORMATION FOR SEQ ID NO:1053

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 756 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...756

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1053

gctacatttg	ccggcaaaca	aagattctaa	acgagcaata	agcaactatt	attaaactat	60
tacatcctat	caaccaactt	tcctaacgat	ccgaacgctg	aaatatactc	tcctacttca	120
caatctactc	tcacccatcc	catccattat	ttatatggca	tcategcatt	tgaaaacaga	180
caaacattgc	acaaggatag	ggactaatca	ttcctctcca	ctcctgcaaa	tctataaggg	240
accgcgcggt	tgggccacga	atcgagcggy	tgtctctttt	atatcagctc	tccaacagcc	300
ttttctgttc	tactatttat	atacaaatcg	aatacgatct	ataacaaatg	gaaaatgatt	360
tatatataaa	tcgaaaacga	tctgtatata	aatgaaactg	attaatatat	acatcgccat	420
cgaaactctt	tcaaagcaga	ctcaactccc	aaaagtccga	ttcatgaaca	tttttacctt	480
gaaaacctct	cctttcaatc	gcttatttag	aatgattcca	aactcttctt	cgttgttgaa	540
acttttctgg	tctgtatttt	cgtgaaatat	tttcagatgg	gatggtgatg	tatccggcat	600
tatcgaatca	aaaaaacgaa	gtactgcttc	cggactaata	tagctaacag	actgcaaatg	660
tcgaagatca	gactgtaggc	attccgtctg	aatcgggtaa	aaagctttgt	ctcagtgagt	720
aatccctac	ctttgggcgt	gcaaggcttt	tgctgc			756

(2) INFORMATION FOR SEQ ID NO:1054

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2205 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2205

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1054

gccaaactcc	atacagcact	gtaaacaac	actttacacc	attaccacct	aaaggagctg	60
tccaataatt	agacatcggc	gtctaattat	tggacagtta	tcctctgaaa	ggaaaggcct	120
cctccgcgag	ggagaaagag	caaggaaagt	tatatggccg	gttttcctct	tccgctatat	180
aggcgattcc	ctccttagaa	gttcgatgag	ctcgccgaga	ccatgacgct	ccagatcgag	240
cacgcctgac	gcacgcagta	atcgcccgct	attccggcca	cgactatacg	ttcgccgagc	300
gcaacgaatc	gggtacttcc	gtctcgaagg	cactgtaagc	atccgctcct	gcgtagtagc	360
cttctctatc	atttcgacag	ggataccctc	ggcgaacaag	cagccagagc	ctccgcaatg	420
catggttcga	tagcggtctc	cccgatatag	ggacacaatg	cgacggccac	tgtccgacct	480
gtgccacgaa	ctgcaatgat	cgcccggtat	ctgatccatc	gtcacgacga	tagactttac	540
tccttccgat	gtgcagccat	atattcagcc	aaagccttca	tggctttcgt	gcaccttcga	600
cagccaacga	accgcttacg	aaatccacct	gcggtatcag	atcaaaagta	ccatagctct	660
atgcctttct	tcttctttac	ggaggataga	gtcccaagtc	gatgtcgtgc	ttctcgtgcc	720
aaggaagacc	ctgctggcta	cctcttcgag	gaacggatcg	ggatcgaact	cctccacatt	780
gaagcaccgg	gcttgcgcca	gatacccttc	atgaacatca	tggctcctac	cgtgcaggga	840
caccgctcgt	atagcttaca	ccctgcgttc	ccgtctcttt	gtggcgacct	cgtggctgca	900
gttgttccag	atataatagg	tacgctcctt	gcacgcgga	taccgcggat	gcgacagccg	960
atactcgtct	cgcccgata	ttctcaccga	ggtcttcagg	gttgggcagc	acggctttga	1020
ggaattggag	gggacgatct	ccacgcggtt	gtacatgac	gggtcgatgc	gcgtcatacg	1080
atattctgca	tcacgcgaag	atgagtcaga	tattcctgtc	cgaacgtatc	caaaaacgag	1140
cgcgcttgat	cgtcgggaaa	ttcttcacga	gtgattcagt	tcctcatgat	agaggagata	1200
ggactcgcgc	tcaccgatac	tcggaaggtc	agcgtcttgt	gtatttctct	cggttcggtc	1260
tctatccaac	ggccttctcc	cagtacttac	ccttctgagt	gatctcacgg	atgttgattt	1320
cggattgaag	ttcgtggcaa	acgccttggt	gtggtcgcca	ccattgcagt	cccaatatcg	1380
agataatgaa	tctcatcgaa	atgatgcttg	gccgcataag	cgtatataca	ctcgtcacac	1440
ccggatcgaa	gccgcaaccc	aggatagcag	caggccggcc	ttgcgaaaac	gatcctgata	1500
agcccaactgc	caactgtatc	atacttggct	tcgtcagagag	gctcgtagtt	ggccgatatc	1560
agatagttac	cccacagcgc	agacaggcat	ccatgatcgt	cagatcctga	tagggaatgc	1620
tacgttgatc	accaattccg	gtttgaaact	ctcgaacaga	gccaccgttc	ttccacattg	1680
tcggcatcga	cctgagcggg	ttggatccgg	acgttttgat	ttcggacgca	atcttgctgc	1740
acttgcttct	cgtgcgggtg	gctacatgat	ctccgtgaat	acatcggtgt	tcatagccac	1800
cttcttgccc	acacgggtacc	tacacgcggc	gccccgataa	tgaggacttt	acccattttt	1860
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aatcggcaaa	aagattccgc	ccccactcac	ccggcccccc	aaagcgtaga	gatgcatctc	1980
atgcaggatc	ggcctacgca	ccaaaatctc	ttacatgcca	cgccataaaa	cgtgggtcgt	2040
aaactttttt	gttttggtcg	ggaagtgaag	aattctcgcg	ccacaacgaa	aaagttctcg	2100
caccactcgt	tcagaaaaca	cgcgccaaa	tcagatcatt	tgcggttcgt	atttccacaa	2160
aactgatccg	gactaaaagg	aagttaagta	gtcatgtttac	acggc		2205

(2) INFORMATION FOR SEQ ID NO:1055

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1977 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...1977

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1055

ggcaaggaag	tcgcccgttt	cttgattgct	cagatgtccg	ttcggcccca	tactcgctct	60
ttcagaaact	ccggataggg	tccgcttagc	agcatctcca	gtcatagttg	gcttccataa	120
cgagataatc	ggctttggaa	gcatagtaga	aatggtgtcg	gtgatgtgtc	cgacatcggt	180
gcacagcgtg	aagctgagcc	cggagccgtg	atatggtacc	ctacgttttc	tgtggcatcg	240
tgaggatggg	aaaggccgtt	atatcgaatc	cggccagacg	aaatgtttct	tcctaaggat	300
attgcgccgt	gaaaggagtg	ggaggtgatc	catgtatcta	ctgtgttgat	accgttatgt	360
actctttccg	tagcaaatac	gggcagggtg	aattttctcc	caggcagccg	atagttcgaa	420
tgtggtcggc	atggtcatgt	ggaccaatac	acctacgaca	ttaccttcga	tggggagctg	480
atgatctttg	gggcttttga	aatgcttctt	aatggaatgc	ctgcatcgat	aagcagtgtc	540
gattgccatt	ggagagatag	tagcagttgc	cactactgcc	gctggcgaa	tcataaattt	600
gatcatcttg	ctttccgttc	tcctttgttc	tttgcccgac	tgtccgactg	aaaaagatca	660
gcacggccat	ttgttggttt	cgtaccttcg	cccacgctta	tttctccttt	tagagagcgt	720
ttcatctctg	cttttcacgc	tccggtgtat	agccacgccc	gaacagatac	atgagcttga	780
tgatgcacac	tccgtcgtac	tgtcataacc	gctgataagt	ccgatgtttt	cgattgatgc	840
cccgtttcgt	atcgatgcat	atccacatag	cccgatacgc	atgggtaaca	ttgacgatga	900
cgattccacg	ctgaacggcc	ttctccagag	cttcaggaa	cacggctcca	tgggggcatt	960
gccactaccg	tatgtctcca	gactacaccc	ttcagtggag	ggatgccgag	aatgctctcc	1020
actacttctg	tgtaatgccg	gggaatat	tcaggatcac	aacgtttctg	tccatttcgt	1080
ctggacactg	agggcggcat	cggccctctg	gtctgctatc	agagcatctc	gtatcgaatg	1140
tcgataccgg	cataggccaa	gggtgaaaag	ttgtataagc	aaaggcgtcg	aactggctcg	1200
cactgacttt	cgatgtacga	ttgcccgcat	cagatagttg	tcgaagaaaa	tacaaacttc	1260
cggtacgcgg	gcatgccgtt	ttgtttgggt	gcagcaattt	cgatagcggg	gatgagggtt	1320
tcttgccatc	cgtacgaagg	gtaccgatag	gcagctgtga	ccctgtcaag	atacgggttt	1380
ctgcagatca	tccagcataa	agcttagagc	agaggccgtg	tggccatcgt	atcagtgcgg	1440
tgtaggatga	caaaaccgtc	gtaggcccg	aattctcccg	aatggtgtcg	gccagcctta	1500
cccacaaatc	cggagagatg	cggccgagtc	gatgggagga	tcaaactgga	tggagtcgat	1560
tttgaacga	aatttttcag	ttccggcaca	ttggtttcca	gatatttgaa	gtcgaaactt	1620
ctaatacttt	cgtctccgga	ttctcaatca	taccaattgt	ccccccgtat	atatgaggag	1680
aatcgagaa	cgctctgaag	cagatttagt	ttgcatatgt	ggtgagctaa	acaaaacggt	1740
ggcgggtttt	tccttccggc	ttccagatcg	tacagccatc	ggactatggc	tttggtacg	1800
gccgggtgcg	aaaataataa	aagctcgttc	agagcatgct	ttacggccag	agcaatcggt	1860
ttgaagtgtt	aaacacata	taaacctgat	gatgtccat	ccaaaataag	ctagcacgat	1920
attgtctgag	agcgtagaga	ggaaaacgat	caggagtaaa	gtcaagagga	taactct	1977

(2) INFORMATION FOR SEQ ID NO:1056

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2607 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...2607

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1056

ttcttttttt	cactcatctc	ttgcagacga	ctcataaacg	cttgctttgt	cgaagagatg	60
acgcttctct	tcggcagtc	atgatgcata	tcccgataac	gaattttatc	gaggatctca	120
tcgatggaag	tctttgtttc	tcgtatttgg	gatccgttcc	actcttttta	gcagccggat	180
tggtcgttct	tcttaccgaa	agcgaaggctt	cgagcatact	tttcttcggc	cggagagcga	240
gctgaaaagt	cggtcatgcg	atcgagcagt	cgctgaaacc	aaaccgtgat	gtcctgcctc	300
gggccaatga	aagggcaaac	aagactccga	aagccgctcc	tccatatgtg	ccacgtgacc	360
accgaagtta	tcccccgctc	atagcaatac	atcaatacaa	aaaggatgag	agccaatgtc	420
gtcagcttga	tccgacctat	gataacagat	tcactcgctc	ccagcgagca	taaaaagcca	480
tcccgaaagc	atggccatca	cgctggcaga	agctccgata	agaggggaaat	gagacaaacc	540
aatgaaaagg	cgtcagcgaa	caagactgcc	aatacataga	gcaatcctcg	gccagtccgc	600
caagcagata	gacactgacc	agccttctgg	gattctgtag	cgcaggaaaa	gctgtccgaa	660
ccaatagagc	cacagcatat	tgaagaaaga	tgccatagat	ccgagtgcag	ccatatgtac	720
gtgaatagcg	tccatgatgt	ctcgaaaagg	tataataatc	gggggccaac	caaagccacc	780
gtcacgata	tacggatcgg	catccaaaag	agacagaaaag	gcatgcaaaa	gccaacgaac	840
aaggagatca	agaccgtgaa	taccatcaaa	cgagtattca	tacagccaat	ctcaggcggt	900
ggcgcagttc	tctaattgta	aggtccatcg	actctccttt	cctgcgccag	aggagaatga	960
gtataatacc	tcctatcata	cacccaaatg	agcaaagtga	gcgatgttgc	taccacctgc	1020
catcggtgca	caccaaggaa	cagctctaca	aggccgtata	taataacaaa	ccacttggtt	1080
tgatgggaat	ggggataaag	aaaaggtaga	tctcaccatt	ggggaaggca	tcccgaaggc	1140
caatagcaac	ccgaatacgg	ctccggaggc	accgacgtcg	ttggcaaatt	gaggaaagca	1200
ctcttgagca	tctccgtacc	ctccgaaagc	gaacaaactc	ggccggactg	ttcacgatgg	1260
gcatcagatc	cacaccata	cgatctgctg	tgccaatgca	gccgtaagac	cacaaataac	1320
ataaagatga	ggaaacgctt	cgccccccaa	aactgctcta	tcagccgtcc	gacatccata	1380
gggaaaacat	attgaagaag	agatgcgaga	ggccatcgty	tagaacatat	aggaaacgaa	1440
ctgtatggga	ttgaaactgt	ctgcctgaaa	taatgcagcc	ccatgggtatc	gttcagatcg	1500
atattgaatc	gtgcctcaat	acgtaagtcg	cgaacaggaa	tatcgcatcg	atgatgatca	1560
ggttctgctt	acgggtggag	caaactgata	attcctttct	ctaaagctat	tcatatttgg	1620
attgttcttg	tttctatttt	caataccaag	tattcgtgat	gggacgttgc	tctgctgata	1680
nttcagatcc	tgcaagagt	aactcttcnc	cgatagacga	aannatagga	cttgtatgct	1740
cctataggga	tgaactggc	cgagtagccc	agcagtgcat	gtcgcgagtg	acgttgccagg	1800
taagcgatgt	tatttcttca	agtcgaaatt	gtagttcgca	ttgaatccga	agctccagtt	1860
cgtgtaggct	ggatattgcc	gcgaaaagtc	agattctgcg	ttaccgggta	gagtgtccca	1920
tcttattgac	attgtacct	ttgtagtcgg	tagcaatatt	caactatagt	cgaaggacag	1980
gctccatggg	atcgaaatat	cgaagtaaca	tcttgatcca	ctgctccgcc	ctgacgggtg	2040
cgctcgagga	gcgaccccc	ctttcatatt	gcggtcttcc	tccctcaagt	atatcggcag	2100
catcgctcct	tcatgaggag	tagccctgtg	gtttttcttt	tcatctctcc	gctccttttg	2160
ccactgaaaa	gagctatcaa	tccgctgagc	gactctttgt	tgagctatag	ctgaaagaag	2220
taccgcgtact	gatcaggcgt	gccaatccct	tgcttataaa	atgcgcaggt	cgttgctctt	2280
atagggaatg	atcttcccat	ctttccctca	taatacttcg	tcaaataagg	atcgaaacaga	2340
cgggacaagc	cgaggtaaa	ctcttgga	ggcgaagtgc	cagcgaagcc	gagatattgc	2400
tcacgcggatc	gaatcggcaa	acatattata	ggatgtagac	catgtgaact	atctatcagg	2460
ctgatcttct	tgatccctgt	cgaatccgat	ttggatttgt	cttggcctct	aagttgttgt	2520
caaaagagaa	attgacagat	cctgcattcc	catggaggga	gcaccgaata	tctgctcgaa	2580
ataaggagag	tagagcacgt	atgcagc				2607

(2) INFORMATION FOR SEQ ID NO:1057

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1008 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1008

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1057

ctgatgatag	caggcaaaaa	gatcgaggat	gtgcgatatcg	tagtgaacgt	gcaggagcat	60
cggcttttctc	ctgcacaaaa	ctgtacgaat	ccttcgggtcc	agaagagaaa	acatcctgat	120
gctcgacagc	aaaggggtga	tcacggcgat	cggacggatc	tgaccgaaca	gaaacgctac	180
tttgccaccg	aacgtacgat	gtgcacacgc	tggccgaggc	cattgccggt	gcagacgtct	240
tcgtcgtctg	tcccgaacca	atgtgctcac	gcaggatatg	gtgcggacga	tggccccaat	300
cccattgtat	ttgctctggc	caatcccaat	cgggagatta	ctttgagcaa	gctactgccg	360
ctcgtgagga	tattatcatg	gctacggggc	gtcggattat	cccaaccaga	tcaacaatgt	420
gatcggtttc	ccttatatat	tcgtggagct	ttggacgtta	gtgccaaaggc	tatcaatgag	480
gaaatgaaac	ggctgctacg	atggctatcg	cggatttggc	gcgagagact	gtccccgaca	540
agtactgcga	gcctatggca	atactcagtt	gcacttcggg	aaggactatt	tattcccaag	600
ccggtggatc	ctcgtctgat	cgttcgcgta	tctactgcgt	agcacgtgcg	gcagtcgaga	660
gcggagtggc	tgagcatcct	attgcgattg	ggctgcttat	gaggccgaat	tggtgggacg	720
ggtgggactg	atgagcacct	tacgcgtcgt	cttcatgaat	ctgccaaagct	caatcctcat	780
cgcggatcta	tgcagcctgc	gagaatcctt	cgggtgctgaa	agctgccgta	tcgcacgtgc	840
acatggaata	gcccgaaccga	tcatgttggg	ggatgagaag	caattcggga	ttttgccgca	900
gagttggatt	tatcttttga	gggtatcgaa	acgttaatta	cccgtttccg	atgaaagaaa	960
aggcttcgcc	gtcattcatt	tgcccggtgc	tttgccgaac	agaactgg		1008

(2) INFORMATION FOR SEQ ID NO:1058

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2271 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2271

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1058

gggagcttcg	attcgattca	tcagatacca	gcgtttcgat	cgtttgtgcg	ttcgtattgg	60
atgacttcgg	cattgccatg	cacctgtatc	tggcgtagac	gctgtcctgc	atataggctc	120
tgatatgtct	gcggcgagc	tggatcatcat	gacggaatct	atccgccgaa	cggcaagagc	180
cttggttaagc	acatgcgata	gtccagactg	tcgttgcgga	atttgaaccg	gacgtatcgc	240
ccgctaactg	ggagtcttca	ttccacataa	tggggttgtc	ataaaggtag	agcaagaatc	300
gcgagagtcg	tactgcatag	agtcggcaat	ggcttggaca	tcattcgata	aaccgcgtaca	360
tgtctgtacc	cgcgtgctat	ccgcctatcc	tcgggacgcg	acgctgcgtg	atcatctcaa	420
gcgtgtcggc	tgctgccccac	aggtgtcggg	tttggaaaag	tcgatcatat	aagatcgttg	480
ggtggcaaaa	catagtcctt	cttctcatcg	taataaccat	actccccata	aagagaagac	540
ggttcaccgt	atcgggtgag	atcatattgc	cgaaggcttc	gccaaaacgg	tacgacggtc	600
gtaaaagatc	gagtcctccg	tcaattgctt	ggccccgtgg	aggaataaac	gatggagcga	660
tccagcaaaa	tgcttacatc	ggtgttgaat	cgtacactcc	tcgcgtagaa	acgatatagc	720
cggagtccga	tctcactccg	taggccccaa	tatgtgactg	atcttgggtat	ctgtattata	780
atgagttctt	ccgtgtccat	ggtatagtcc	ttattttcca	aatggacatt	atccggaaga	840
tggcatcgga	tgtggtggga	gaatattctc	catagctgga	agcagcgtat	tgagagagtc	900
gactatgcta	ccaccttcga	aatagtagcc	cggttcattga	cccggtcata	atccaaacta	960
tccgtaaaaga	gagtagccga	cgattttcca	gtcgcacttc	atggcggaaga	cgagcgtatt	1020
tgatgtttca	tcataatgga	gatagcgggc	gaacatggat	acggtgtcgc	cctgctgctg	1080
gaaacttggc	cgaatgcttc	gaaagtgttc	tcttcctgat	taagatggcg	ctgtcgcagc	1140
gcatacacagc	tccttcatgc	ttgatcacga	cattgcaagc	agacgctgta	catcgggggtt	1200
gtagagtctg	tcgtaacgga	gttcacggca	tgttcgagga	tgacatgcgt	tttccccctta	1260
ctcccttttg	gaggggacct	tggagagag	caagggcaga	aaaagagaga	gtgacgatca	1320

gaatatcgcc	cccagttgtc	ggctaccgag	ccgagattct	cgtttttctc	ccttctcacc	1380
tatttgact	cgagacagaa	agaaactctc	tctccaaaga	gttttctttc	caccccgaa	1440
tattgtctgt	cttcaagcca	gcccggatag	ggaactgaca	gttgcggtag	gcaggttcga	1500
tgtggatata	agtttctttt	gcttcttctt	tatccatgca	tcgacaactc	cttcttctt	1560
tttgtttagg	ctaaggcctt	gatcgtttgg	aaatcggagt	tcagtgtggc	tcggtgtctt	1620
cgatcagatt	tttgatcttc	acgatgacaa	cctcctcatt	accttttccg	ttttgagaat	1680
aaaaggcttg	gaaacttcac	cgggcttcat	attgtgacaa	ctcggtgat	gtcttgtggc	1740
aactcttcgt	acttgaagcg	ggagaactat	aaaaatcgct	ctgctggagc	ttattgacca	1800
taagtccctg	attttgcgcg	tatcgttatc	ttcagagtat	tgggcaacgg	ctttttcaaa	1860
ggcagcttat	ttccttttat	cagggagtac	aagctatcca	gcttgtttgt	atttccgtca	1920
aggcagcatc	agatactttg	ggtttgagta	cgatctgtcg	aaattgatca	catcgctctg	1980
tttctctatg	agctgaacga	tatgatagcg	tcgtcggttt	taatgatcgg	ggaaacacgc	2040
ttcgtatcag	taagtgaaaa	accacgcgag	caaactccgc	atccagcgaa	gccttgcctga	2100
caaagcctat	tcgccaccct	gtaaagcagt	cttggagtct	tcggagtaca	aacgggcagc	2160
gtagtgaat	cgcgtcgtcc	ttcattgatc	tcacccgaga	attcggcaat	ctcttcttga	2220
tagcatccgt	ttcatgcaga	gagattaccg	gcttatggca	agtaattgta	c	2271

(2) INFORMATION FOR SEQ ID NO:1059

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1782 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1782

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1059

ggcaagccca	tttcttttag	ctggagggtc	aggtaaagat	tgcgctccaa	ttacaggtgt	60
ctactacatt	cagcaccaga	tcgggacggg	tttctctggt	agatattggc	gaatatacag	120
ttcttcagga	ctgtatggag	aaagagatag	gtgccgggca	ggtcgataat	ctctatcttg	180
tagtccccgt	gccggagaga	ccttctttcg	cttctaccgt	cacaccgcta	tagttcccca	240
catgtcatgg	gcaccgctgg	cgcggttgaa	tatggaggtc	ttaccgcagt	tgggtttcct	300
atcagggcaa	cgcgtattac	atgtccgttc	ggcttgactt	cgactctatt	tccgattttg	360
tcttcgctga	aatatcctct	gtcggatttg	ttgaatggat	tcgttcgaat	cgggatttgc	420
ggattgctct	cctatgtcat	tcttgccggt	gaagaagtcg	cattcgagga	tatgagctcc	480
acttctatth	ggctgcatcc	tctctccgta	aagagacatt	gtagtccatg	atgcgataaa	540
gaccggatcc	cgcaatgggg	cacactggac	gacggtaatc	gtcttgccctg	cacaaatccc	600
atttctaaaa	tccgtttgcg	gaataccccc	cgacctttac	tcgtacgatt	actgcttgat	660
cgcgcgtatg	taattctgat	aatctctgat	agcgcaaaaa	tactaactaa	accaatgaat	720
aaacgagaaa	tacaattatt	attaaagaga	ctgttgacac	ataaccctct	ccccctctca	780
tattatcaag	acagacacaa	gcattgattt	gacgaagaaa	ggagagcttc	atgaatctct	840
ctgcaaacct	caagtaatct	gaaaaacact	taagaatcag	cttgccggcaa	aagacttcaa	900
tgaaagtcct	ataaaatagt	tgcaaacagc	tatagtttagc	gcattgatgg	gagcagaatc	960
agctgacaat	cgcgtcctgc	tcgtgcaggg	agcaagaatc	agttgacaat	cgcgtcctgc	1020
atcgtgcaga	agcaagaatc	agctgacaat	cgcgtcctgc	attgtgcagg	aagcaagatc	1080
agctgacata	cgcgtcctgc	atgtgtcagg	aagcaagaat	cagctgaaat	cgcgtcctgc	1140
atcgtgcagg	aagcaagaat	cagctgacaa	tcgctctgc	atcgtgcagg	aagcaagaat	1200
cagttgacaa	tcgctcctg	catcggcagg	gagcaagaat	cagctgacaa	tcgctcctg	1260
catcgtgcag	ggagaagaat	cagttgacaa	tcgctcctg	catcgtgcag	gaagcaagaa	1320
tcattgacaa	tcgctcctg	catcgtgcag	gaagcaagaa	acagccgaca	atgcgtcctg	1380
catcgtgcag	gaagcaagaa	tcagttgaca	atcgcgtcct	gatcgtgcag	gaagcaagaa	1440
tcagttgaca	atcgcgtcct	gcacgtgcag	gaagcaagaa	tcagttgaca	atcgcgtcct	1500
gcacgtgcag	ggaagcaaga	tcagttgaca	atcgcgtcct	gcacgtgcag	ggaagcaaga	1560
atcagctgca	atcgcgtcct	gcacgtgcag	ggagcaagaa	aacagccgac	aatcattctt	1620

atttctcgcc	tatcggcaca	agcattgatt	tgacgaggaa	aggaatcttc	tctgatggaa	1680
acttggtgaa	atttctatatt	gctcggtgcc	catatccgga	ggtttgacct	ttcccgaaga	1740
cactaagaat	ctgctctgca	gcaaagagtt	caatgaaaat	cc		1782

(2) INFORMATION FOR SEQ ID NO:1060

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1158 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1158

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1060

tcattcttgat	cagaatattc	tcctcctcaa	tgccttccgt	ccggtccgaa	gggaaaagag	60
aggtaagaga	tgattattgt	tggttcttat	tattgtaatc	ttgggggttg	agtctttcca	120
aattcttcagc	agcttttctg	tagcttctgc	agactgcctt	ggaactcgcc	gccggcagca	180
ttcttgtgtc	cgccgcaccg	aagttctcgg	caaggggtgt	caccggatag	ttgcctgtgg	240
agcggatgag	agcttgatct	gatttttgtc	ctctcgcagg	aaacatacac	cctcatccct	300
gcaatatcga	ggggcagatt	ggccagacca	tcggtatcac	ccgccggttg	tggaatcgta	360
ccagctcctc	tgctgacagc	gtgaagtatg	ctcgccatt	tccggcagca	aagtcatttt	420
ctcgtacagc	acataaccct	gatactcatc	ttgccttccg	aattttgctg	aaaggtattg	480
cggatgatcg	gtctttgtcc	gcaccggctc	gcataagatc	tgctacgagc	agataaagac	540
cggatcggaa	gagctgtagg	aaaatacgcc	cgtatccgtc	agtatcccgt	catcaaagcc	600
gtggccgcat	cttgggtcag	gtaggactcc	atgcctaggc	cttggccaaa	cgcaagacca	660
actccgaagt	agaagacagg	ggggggagct	gaagctgaga	gtgaagatat	ctgccggata	720
gagatgatga	tcgatagcac	tttgggggct	gacgaactct	ccaatgcgct	ttgcagtcct	780
gctaccgatg	tgagcattg	aaatccatgc	agaagaccag	atcggcttca	gccatgcctt	840
ctccgcctcc	gaagnatgag	tctcgtgcac	tattactttg	ttgctcccgg	aatgcagtac	900
aggtattggg	gaatatcatc	aggtacgatt	aactgatgtg	ggacntgcct	ttttctctca	960
gcatggcagc	aaaaccgata	tgcttctctac	cgagtcgccg	tccggagccg	tatgcgagat	1020
cagagcgatc	gctctgcctc	ctctaccatt	ttacgcaaag	ctggttgcgg	agccggatga	1080
tttttattcc	tgccataact	tttctctctt	agctttttct	tcgctttttt	tcagagattc	1140
gtaggggatc	ctctagag					1158

(2) INFORMATION FOR SEQ ID NO:1061

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 601 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...601

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1061

ctcggtagcc	ttaacagctc	ctttcgtatg	tgtgtattta	gcccgaatcga	tagggcaagg	60
caaagggtaa	tggctgtaga	gtctaggagc	ttgacgggtg	cttaaaacga	aacttacgcc	120
cttgcccat	accctgctgt	ccgaaatata	tagcaaggca	taatagcacg	ctcgaaagaa	180
gtctgaggta	cgggtgccgt	ctgataagat	aaattggact	tagagggtgc	tgtgcatatg	240
cctaattggt	gaggttacct	gtggctgagc	gtaagccatt	actaatctcg	cgtaggagat	300
acagcttgag	aattggctga	aaatcatgct	cactaagtgt	tgcaccctgt	gaagtgtttg	360
ctatgttngt	ttacttgaaa	ctctgtagag	agttcttaata	caacggacga	ggnaacaggn	420
ggataacttg	ggcgaatagg	ctatatattgt	actcatcaga	gttttctgtg	gaatataccc	480
aaggtaagat	atttacctta	ggtggctctg	ataatagacg	aaaggagagg	tgctgtgaat	540
acctctccta	atcttttacc	aaaatagctt	ttaggacact	aatggtcgga	gtatgaattt	600
t						601

(2) INFORMATION FOR SEQ ID NO:1062

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 861 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...861

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1062

tctcctgaca	tttggcacgg	tgtgcatcgt	cggcatcggg	acgctccgtg	ccaagcgcac	60
gttgtggatt	ttgagcttca	gtatcgagag	gcatcgatg	cccatgccgg	actttcgggtg	120
ttgatcgtag	catcggcagt	accttcaatc	cttgtagta	tcgagaaaat	agctgtctat	180
caactccacc	agatcgttct	gtcttgattg	gatttgctga	tacggcgttt	gattaccagc	240
gcatcgccgg	atcgatgttg	ggatcacgta	taatatcttc	gagatgccac	tgggattatc	300
gatccaattc	ttcaaaaaa	aataatgctc	gatcgtttga	ggcgatatgg	attgttgcac	360
ggtgctgcta	cgctgtcgg	gacgttatag	gctgaatagc	ctcgccgaaa	atcctattgc	420
acaacttgct	gatagtcata	atattattgc	cgcttaattt	gtcaaaaatta	taatgctatg	480
cggacaaaaga	atataaaaa	ccgattggcg	aactctgaga	attaagtcct	ccaatcgggt	540
tgtaaatgtc	taaaaagcaa	caataatttt	aatgagtcct	ttttgacttc	ttttttattg	600
cttatcagtt	gccttttcgt	gcttcttggc	gtgcgggaat	ttcctgcttc	agctttgcct	660
ttgccttcgc	aagattttgt	gccgtgttgc	tcttgcactc	gcctttttct	gaactgtggc	720
agtcactttt	tttgctctt	tggatttgtc	cttgctacaa	tcttttgcgt	tggcatcctt	780
ggcctatcct	tacagcagtc	tttggcatct	ttagccttgt	ctttgcaact	ctcccagctt	840
tcttggcatc	acaagctttg	t				861

(2) INFORMATION FOR SEQ ID NO:1063

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1219 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1219

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1063

tgctcaccga	tcccacttgc	gacagagcac	gccggacggg	aagaatcctc	ctcaagagcc	60
aaacgttgcc	cgcacgcagg	aaaacggctg	cgtggagacc	ccgaaaagct	tgcctctata	120
ttccacgttg	gcttcgagtt	tgaattcccc	acctgatcca	aataggaata	ctgattgtcg	180
gaatccggat	tgaacctccg	gggccgatgc	tacggacggg	gaaagctctg	atactattgg	240
caccgctaca	tagaactgct	cgctataggg	tgccactcgc	atattgccat	agcttatatc	300
acgcctgtcc	cgaaacgggt	tgccagtgc	tgattgcggg	ctaggtatag	gaatagcgca	360
gttctcccgt	ggctttgatg	aactgagaga	agggacgccg	acgaaattct	tggtgtcgct	420
gtacttcttg	ccggctgcc	gtagatcaga	ttcaggagat	tgccctgcctc	ggatagtccg	480
aattgcatcc	aagatgatga	ggacttttct	ctgaaaacgga	tttgttgaac	gtatagataa	540
ccccatttga	gcaaggaact	gactctgaag	gctgagcagc	aggggcgggt	gttcgccgta	600
atggcctgga	aagtttctgt	ctgatgcccc	aggaggtgta	gttgagcttg	agcgggaaaa	660
tagcatgccg	gtgttccttg	gagggcgaaa	ttcgtagggtg	gtcgaaaagc	cgaaagagta	720
catgctaaag	tagtggccct	gttcagcgcg	gtggcagaag	cctgaaaagt	cgtagtcgtg	780
gggtgtaata	gtatttatcc	agcagaccgg	gaaatacaat	cgagggaaac	gagggttcac	840
ggcgcgtattc	atgttgtagc	aatttatatc	gatcagccga	ttctgctatt	ttcgggacga	900
ttgccgggtct	cccactcata	cgatccaccg	aattccaaga	aagattttct	cctccgccga	960
atacattgcg	ccgagcaaga	caaaattcag	tccgggaccg	atgaagtcac	tgcttttgct	1020
cgtgaacaag	tctctaata	tgcatcccaa	ggtttgtcga	gggtgggttag	cagtcgcaat	1080
ccaaaaggcc	ggaaatggaa	tcgcgttgca	aaaaattgag	atcgatacgg	agaaggctcc	1140
caaacgagcc	aaggatttgc	gtgtcgtctc	atcgtcttct	gccgatacag	attgccggag	1200
aaagaaacga	aagcgtttg					1219

(2) INFORMATION FOR SEQ ID NO:1064

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 916 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...916

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1064

ggagatcttc	ggagtggcga	taaagaacag	ctacaacgtc	tatatgaact	gaaacgtcgc	60
aaagatgata	gccgcacct	ttttcttgat	gaactccgga	gaaacttaat	aagcgtatgg	120
tggaagcgca	tctgaaagc	ggcaagtcaa	aaagcgataa	tcgcattggg	taatcaggct	180
tcctcaaata	aaagggagtc	tgatttttac	atccatgcaa	ggagcaatat	gatataatat	240
gtctatgccg	atgttgccat	ttctcttgaa	atttacgagt	gagttgtacg	atttccctcc	300
aataatagct	aattcgagtg	tcagtttctc	caacttagtg	agctcgcaaa	ggctttcttc	360
tccgtaaaat	tgtcttttca	agcgactaca	gttggttata	attcaccocg	acactgcgaa	420
attgtccgta	caaagtgtgc	atttttggt	gtaatcgagc	aacgaacgat	ccacttttat	480
cactcgaaag	tctcattaaa	gacccttgcc	ttgatgaaag	cggctctatt	ttgaagcccg	540

799

attgctcgaa tagcgtagg aaacgagcaa attctgtgtc cgtaaatcaa ccatacaaca	600
atggctcggct cgttcattct tgggagggtc tcccacattc tctttgtcat tactttggat	660
tttaatgggt tgtaattctc tcttctgaaa tagaacgtgc taaacacaat tgaaatccat	720
tagagagcgt tcacgtaaaa tagccaatca agacaacgaa aacttctatc caagaacacc	780
gactcggagg tgttctgccc tctgcaagag caaggggttt gagttaccga aatatttcgg	840
gtaacgcaag acataccttg ctatttgcac tgacgcaaat aattcgttcc gaagaacgat	900
atgttattct ctcgaa	916

(2) INFORMATION FOR SEQ ID NO:1065

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 399 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...399

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1065

cttccttcaa atttcatctc ttccgtacca tcttctgttg tgaaagcaga atgtccacag	60
tggcattgtt ttccaagatg agcatctccc accttgatac aacttgtgca ttgagagcag	120
caatgaaacc tgccaacaat gcgatgcgat aaagattttc ctcatatttc tttttgtttt	180
tttattcatt cattattgcc atcggattgc ggattgatct ttacatgcac aacgtcatac	240
acttcaacgt ctgcacatcg tatacaaaag ccacaatcga ataattctcg gctagaaggn	300
catacccgag agcggttcaa cggcgtaagt atacaaataa tcttgagatt cacaattct	360
tcgccccaaa taccattaac ggctccacgc aaacgtgga	399

(2) INFORMATION FOR SEQ ID NO:1066

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 542 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...542

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1066

gtgattgtgc tcgtaattct cgactgccgt attgccatcc acctgcggac gatcagctta	60
tcctccaaca gatacacctg aaccatggac ttccggagggt attccccctcc agtattttac	120
cctttacagt caccttgatc ttttgggatc ggtgtattcg gccacggcaa agatattgat	180
cttcgccttt tgctcctctg ctcggcaata ggcacgtccc acgttttgta gctcttatca	240

taaactagga	agagccgaac	tttttgcgcg	aaaccatcag	cgcagggaga	ggggattatt	300
ggcgaacttg	ctataatatg	cgtctccggc	ttctgtacgg	aaagagggtg	cacgagagat	360
ccagggccgg	catgtatacc	gacaacagtc	aactcttacc	gtattgctcc	ttgagagccg	420
ccagtttgcg	atgaccttcc	gacagttgag	acattttttg	ccggtaaatt	cttcagccaa	480
aacatatttt	ctgtgtgcgt	ctgcgtaatg	ttcgatctnc	gaaggattgt	catccggatt	540
cg						542

(2) INFORMATION FOR SEQ ID NO:1067

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3822 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...3822

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1067

tactgtttgt	ggcaagggtta	attgttataa	tcaagacaag	gagccgaagg	aaagcgaagtc	60
ttaaaagggc	gcccatttag	tcacgagcag	tagacgcgaa	ccaagtgatc	tacccttggt	120
caggttgaag	gttaggtaac	actaactgag	gaccgaatcg	gtaagcggtg	aaaagctttc	180
gaatgaactg	agggtagggg	gaaaggctaa	tcaaacttgg	agatagctcg	tactccccga	240
aatgctttag	gtgcagcctg	ttggatgtta	tcatgaggta	gagcgactga	ttggtgcgag	300
ggtttcaccg	cctatcaagt	ccagataaac	tccgaatgca	tgaaattgac	cgatggagtg	360
agggcatggg	tgctaaggtc	catgtccgag	agagaagaat	ccggaccacc	ggctaaggtc	420
ccgaaataat	tgctaagttg	taaaacgaag	tcaagatgca	gagacagcta	ggatggtggc	480
ttggaagcag	cattcattta	aagagtgcgt	aacagctcac	tagtcgagga	ttttggcatg	540
ataatacacg	ggcataagca	atttaccgaa	gccgtgggat	atagtaatta	tcggtagggg	600
agcattccag	cgacgtagaa	gggaaaagg	cgacttttct	ggagtttctg	gaaaagcaaa	660
tgtaggtata	agtaacgata	aaggggagag	aacccccctc	gccgaaagac	caaggtttcc	720
tgatcaacgc	taatcgatca	gggttagtcg	gggcctaagg	ataagccgaa	tggcgattcc	780
gatgaagaac	cgtctaatat	tccggtactg	ggaggagtca	tcgtcaagag	aagctctgaa	840
acagtcgggc	cgctcgacgg	aataggcggt	taaagggtgt	agtgttgatc	ggggtaggca	900
aatccgccct	gagagtcgaa	cctgacagta	ccggagtaca	agtacgaagg	gataaggacg	960
taaaccggct	ccaagaaaa	ccgctaagca	tatttctgtg	ttaccctgtc	cgtaaaccga	1020
cacaggtggt	gggttgagta	tactaaggcg	ctcgagagat	tcgcggttaa	ggaactagca	1080
aaatggctct	gtaacttcgg	gagaaaggac	gcctgtctcc	ggacaggcgc	agaaaccagg	1140
cccaggcgac	tgtttaacaa	aaacacaagg	ctatgcaaaa	agcaatttga	ggtatatagt	1200
ctgacacctg	cccgggtgctg	gaaggtaaga	ggaggagtca	tcgtcaagag	aagctctgaa	1260
ttgaagcccc	agtaacggcg	gccgtaacta	taacggctct	aaggtagcga	aattccttgt	1320
cggttaagttc	cgacctgcac	gaatggtgta	acgatctggg	caactgtctc	acgcgatctc	1380
ggtgaaattg	tagtatcggt	gaagatgccg	attaccgcga	agggacgaaa	agacccccgtg	1440
aacctttact	atagctttac	attgtatttg	gcacagatg	tgtaggatag	gccggaggca	1500
gagaagcggg	tacgccagtt	tcgtggagtc	gatgttgaaa	tacggccctt	ttgatgtttg	1560
gatactaagc	gcggcggtgcg	aggacagtgt	atggtgggta	gtttgactgg	ggtggtccct	1620
ccaaaagcgt	aacggaggct	tctaaaggta	ccctcaggcc	gattggaacc	ggtcgagag	1680
tgtaatggca	caagggtgct	tgactgggag	acaaaaagtc	gcacaggtag	gaaactagag	1740
catagtgate	cggtggttcc	gcataagagg	ccatcgctca	aaggataaaa	ggtactccgg	1800
ggataacagg	ctgtcactcc	caagagctca	tatcgacgga	gtgggttggc	acctcgatgt	1860
cgctcgtcac	atcctggggc	tggagaagggt	cccaagggtt	gggctgttcg	ccattaaagt	1920
ggcacgcgag	ctgggttcag	aacgtcgtga	gacagttcgg	ctctatctgt	tgtgggcgca	1980
ggaaaatttg	gaggggtctga	cactagttaca	gaggaccgtg	ttggacagac	ccctgggtta	2040
ccggttgtag	ccgcagggtat	ccacgtctgg	taaggataag	tgctgaaagc		2100
atctaagacg	aagccggcct	caagataaga	tttccataaa	taggggtggt	aaagacatga	2160
ccttgatagg	ctgcagggtgt	atgattggta	acaattaagc	cgagcgtact	aatagcccga	2220

aacttttgtg	catcccgaag	gatgcggtat	aggtggtttg	ttgccgcaaa	gcttgaggaa	2280
ttatttgttg	gccttttcgat	atgcgattgc	cttttcgaag	tattcaggtg	gttataacgt	2340
tggggatcca	cccttcccat	tccgaacaga	gaagtttaagc	ccaacgggtgc	cgatgggtact	2400
ggtcacagtg	ggagagtagg	acgccgccgt	tttttaagaa	gcgtgagaga	agggggggat	2460
aggatctcca	ccctcctccc	cggaaaaaaa	ggtgaaggaa	gagtctcgaa	tccgaggctc	2520
tctccttttt	tattttctct	ctctccaaaa	tcattttgct	tttctctcta	ttcctctttc	2580
tccttttctt	tccttctctc	ctcccccttg	ctgcgcgtta	ttcctctaac	agatcgtagc	2640
ccaacttctc	attgttcggg	aggtaccata	ggtagccgcg	gacggatgga	tagccatcga	2700
gacgagcagc	cggatataat	tctccatctg	tgcatgatga	acttgcgaa	tgctccgaat	2760
ttatagtcta	cgatgtctgt	gtgatcgtcg	taggaatgat	ccgatcggga	cgacgtgtt	2820
ccccttccgg	gaggagaata	tctgttcatt	aagaactcgt	ccgtaccat	cgaaccaacg	2880
agacaatcga	cgtccgaagt	gacaacagat	aggcgatcga	ccaattcgat	cgctcatct	2940
tcgtgacgat	tcctcccga	acataacgct	caagagcagg	ctcgatgtct	tggcgagaac	3000
gatgtcggca	aggattctgt	gcattacatg	tccgtggtaa	gcggtttgtg	cctgcgataa	3060
aattcactgc	cttcaggccg	gatagccagc	ggtcggctac	ggccgagaga	cttccttttg	3120
gcagggtaaa	aggtaaccag	aagaggggtg	atctgtcgtt	ttttgtctcg	cggatagtag	3180
cggactcccc	agcagtacat	atcggactct	gtcttattct	cgtccaagga	agcagagcta	3240
aatgtataag	atctcccacg	gtagagagcg	attcgggctt	ttggaaggat	gtaaccacag	3300
atgcattctg	tccttcgctc	gtgtcgtagc	caataaagaa	gattgaggtt	gtcaaggaga	3360
atatcggtct	tttctcgga	aaatctgtgg	caaacattgt	ttgtgccatc	tccttcttat	3420
atctgatcgg	actacgggca	ggatattgaa	aggactgcgg	gcaggatcga	tcttgaccgc	3480
aggatgtgtc	gatgtgctgc	ttcgtcgtcc	agattccagt	ccaagaaaga	ataagaacaa	3540
cgcggaagcc	tagacctttc	gccttgtgaa	tggtcatagc	gtgacggcct	gactgttggg	3600
agcggaggaa	atacggcttt	tggcatcccc	gtttcgtccc	accattgcag	gaaagagtgc	3660
agatcggcag	atcgtcgtga	ccgaaatcat	tgattaaatc	cagccaagca	attagatagg	3720
gcattctctt	tcaggtaggt	atgaatggaa	aaaagagacc	aatccttctg	ccattcgtat	3780
aaggagcgac	gacgaaggtt	ggcaaattct	gcaagctctg	cg		3822

(2) INFORMATION FOR SEQ ID NO:1068

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1448 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1448

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1068

gagggtatt	tacctgttc	tattgcagtc	aatcagacaa	cagctcacgg	caggacgtgg	60
attttagtag	aggctctgag	agacaaacag	gcaacttatt	tgcaaacttt	cggagccgac	120
aagcttcagc	gagccggacg	tatcacaggc	atgattccca	tagtccagca	tccttgcggg	180
aatatgatgt	gtgactcgct	tccggtccca	atgacggctc	cccctctccg	atgtttacac	240
ccggcggtcg	taggtttgaa	ccagcctcgt	attataacgt	cagttcgacg	taagaaacgc	300
caatgaataa	ttcttttctt	gatcagaggc	taatgcccta	aaatctcaga	caaatagggg	360
tacctgtctt	ctgcttggtat	cgaaccaaca	ttaaattcgg	attgcttttt	tgaccgaatg	420
ttacagtccg	tacagaaaga	tggctatacc	atagggcaca	tggaggtagt	ccgtagggga	480
tgacgagcta	cccgtagcgc	tcttcgagct	acgctgtaga	gctcagcgag	gtacgccctc	540
agcgtagcga	gccgagccgt	agagttccgc	tccgggagct	gtagaggtgc	cgagccgagc	600
cctagagccc	ggcgcgccga	gccctacagc	gtagctcaag	agccgtagag	cgcagctcgg	660
tacgctctac	ggcgtagccc	gagtcgtgta	ggcgtagctc	gacccccctt	cggagtatgt	720
tccgaacggc	tataaacaat	gcggattcga	tccaagaaaa	acatgcaata	tgctgtttgt	780
caactatttc	atttctcggt	tgagagattt	cagcttcggg	agacttcgac	atcgatgaga	840
cgtcaaactt	tttccctttc	attttctgat	cggttatagt	tatatcccaa	caaaggattg	900
atcgacaaat	acttatgaga	gtcggcacca	tacgcttata	tcgaactcac	tttataagaa	960

taacgcgaag	caagggggag	aaagcaaagt	gccgattatc	ctttgctgtg	tccgactgag	1020
gatgaaaagg	aaaaggaaa	gaagatgaag	ggaaacagaa	gggaggaaa	gaaggaaa	1080
agaaagcata	tagaggaata	gagagaaaag	caaaatgatt	tttggaggag	agaaaaataa	1140
aaaggagaga	gcctcggatt	cgagactctc	tccttccctt	tttttccggg	gaggagggtg	1200
gagatcctat	ccccccctct	ctctccgctt	cttaaaaaac	ggcggcgtcc	tactctccca	1260
ctgtgacgca	gtacatcggc	accgttgggc	ttaaacttctc	tggtcggaat	gggaagaggt	1320
ggaccccaac	gttataacca	cctgaatact	tcgaaaaggc	aatcgacata	tcaaaggcca	1380
acaaataatt	cctcaagctt	tcgggcaaca	aaccaaccta	tccgcatcct	tngggatgca	1440
caaaagtt						1448

(2) INFORMATION FOR SEQ ID NO:1069

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2336 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2336

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1069

cggcagtacc	ttctgtagaa	aagcttgccg	aagatcctat	ggtactcttg	cctcttcggt	60
tttcgacgaa	taccgcaaac	tctacaacga	acttcgtcct	atgacgatcc	tattctaagg	120
gcacaacgca	cctacattgc	aggctctctg	aaatggatgg	cgatcaggat	caattcccgg	180
atgctaacct	gacactcggt	tcacctatgg	tcaagtgaag	ggctattcac	cccgtgacaa	240
tgtttctacg	gacatcaaac	cacattggat	ggtgtgatgg	aaaaagaaga	tcccataatt	300
gggaatttgt	agtcgatccc	aagctgaaag	cgtatacga	gcgaaagact	tcgggcggtta	360
tgccgatcgc	agcggtcgca	tgccgttagc	ctttgcgccca	ccacacatac	aaccggcggc	420
aactcaggca	gtccggtcat	gatgccaaac	gcgaactgat	cggctcctaac	ttcgatcgta	480
actgggaggg	gtcgggtggcg	acatccagta	tctggccgac	taccagcgca	gcatcattgg	540
gatattcgct	acgtcctgct	tgtgatagac	aaagttagcg	gttgccaagc	ctggtggatg	600
aaatgaatat	cgttccctaa	agctatagga	ggtgtgtgaa	cgtccggcac	gcctcttata	660
tattataaat	catatcgggg	cagatccctt	ccggtaaaatt	cggagatcgg	ccggtgtgcg	720
accggagagg	ggcagcccac	gaaagaaaac	attgacaaca	aaaacgacaa	gaagatgaga	780
ttgacctaa	ctccatgatt	tctctatccg	aaataccgga	gcgatactac	cgtcgagaaa	840
tacttacgaa	gagaccctgc	tacgtcgctt	cgagaatata	ccaccaatat	ataccgcacc	900
aacgacgaag	cagcagaagt	cattgccaac	gaatagccaa	ggatatacgg	gagtcgcaag	960
cacaacacaa	atactacacc	tggtctgttc	cggaggcaat	tcgccggtca	tcgtctacga	1020
caaactgata	aaaaacatcg	cgaggaagga	ctcagcttcc	gcaacgtgat	tgcttccacg	1080
tattcgaaata	ctatccaccg	gtcagcgaga	acttaggctg	tctggccaat	tgcgcaagga	1140
ctttctcgac	catatcgaca	tcctgcccga	aaacatatgg	cacccgatgt	atatgcttcg	1200
gaagaaaaac	tactgcaagc	ctgtcggact	acgaatccaa	aatagacagc	ttgggtggca	1260
tcagacacat	gctctcggca	tcgggtcggc	cggcagtatc	gccttcaaca	gccccgggac	1320
gcacccaaca	catacacacg	actcgtcgta	ctcggccata	cggagcacia	cgtgctctga	1380
cgatattcag	ctcccacgac	accatccccc	catcggctat	cgtatgggac	tggtaccat	1440
ccaaaaagct	cacaaggtga	ccctgctggc	tggggagaga	gtaaggcaga	ggtaatagcc	1500
caagctatcg	aaggaaagat	tgcgaggctt	ctccggcttc	gtccctgcaa	ttgcacgca	1560
atgcctctc	gtgctggatc	tatcggcatc	gtcttgtctc	acaaggatca	gtcgtcctgg	1620
ctggtgacga	gctgtatctg	gaacaaacag	ctcatacgca	gggctgggta	tggtgtgctg	1680
gactgaccgg	caagcccata	ctgaagctga	cgaacaggac	tatacggaga	acggattggg	1740
cgaattgctg	gccaaatcag	gtcgcctac	gaggtgaaca	tcaagctctt	caacgacatc	1800
cagcacacca	tcacggctgg	ccgggcgga	aacccaatgc	cgatgacagc	agcaggcctg	1860
aggggcaacta	ccctatccca	agagggtggg	tatcttcagt	ccccaccccg	agacgatgtc	1920
atttcgatgg	gaggaacatt	ccacaaattg	gtcaatcagg	ccacgatgta	catgtagcct	1980
accagacctc	cggcaatata	gccgtgggga	tgaagaagtg	attcgatatg	tgtcgtaccc	2040

cagaaatgta	tgccgccata	cggtcatgag	agcagcccca	ttctggccaa	agcgggaagag	2100
gtgcggccta	tctcatgcac	aaaaagatag	aaggggatcc	cgagcaggag	gatatcggtt	2160
tatgaaagga	accatacgac	gcgaagaagc	ccggacggca	tgcagtactt	gggattgccg	2220
gaggatcatg	ttcatttctt	cgatctgcct	ttcttgagac	gggattgatc	aggaaaaatc	2280
ctttgggaga	ggaagacgtg	cgctcatcat	ggctctattg	gaagagatac	agccgc	2336

(2) INFORMATION FOR SEQ ID NO:1070

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 834 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...834

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1070

gagttgctcc	cccgtgtcgt	gcaaaacaat	ctgacggcgg	tgctcaaagc	gaccggcgca	60
gctatcgttt	cttttccttc	ggcaagtata	tgccccgat	gaaaatatgt	tgctgagcga	120
tccggcaacg	ggggccttgc	aaatggaccg	gacgtgcgga	tgcacgattt	ggccacacga	180
aacggcctcg	aatccgtttt	cgtttcggcc	gcgtggcact	gcattcgacc	acgacgatgg	240
gctatgaggg	gagcagatcg	actaccgctc	ctcgcttcgg	caacccgatg	tgagacttcc	300
ggcggcactt	acggttacca	tgccggccac	tgggagctga	gcggaaaccc	tcgttttctt	360
atcgtttcgg	ccgcacctat	catcgctctg	actgcctgtc	gcgtggcatc	tgttcacttt	420
gaacgataaa	tccgcagcag	acggcggcag	gagagccgag	ccgccttttc	gccggctctc	480
tcgctgcact	ggagccgggg	gcggcatgga	agctgaatgt	ctccgtccgc	cacgggtcatc	540
ttttggcggt	ttggagggat	ttcgctccgg	ctatacgcgc	agggactacg	cacctacctg	600
cttccttcgg	gcttcatgag	cgagaggcga	tattcggggc	aaacttttcg	gtcgactatg	660
gcgacgtgct	gcacctgttc	tattttatct	gaaagccgga	tattcgcgca	gtcgctccaa	720
cgaattgcc	cacttgacta	cacggcggaa	cataatatca	tccgttacga	gcgctattgg	780
cacgtcttaa	cgcttttttc	gccgatatgc	gtctgagcaa	gtttttcttc	ccgc	834

(2) INFORMATION FOR SEQ ID NO:1071

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1999 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1999

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1071

```

agccaagaaa caacagaggg agaaagagcg gccggactta aaaagaaaag ccttctaaat      60
ctgcattttg ttcgcagaat ctaaaaggcc tgttcaaagt taatacgatc aagaaaaacg      120
gaggatgtcc gtaatctctt ccgaaaggat aggttatcgc cctgcgaccg atcagattga      180
gaaactcttc gcgagtgtcg attcctcaaa agctcctgta aagtcactgg tcgtagtcag      240
agagtttgc tctccactcc acgcatctgc atgcacatgt gctgtgcttc gatacgacga      300
tcaccccgag agggttcagc gtattctgga tgcactcctt gattgtgtag tcagccggtc      360
ctgtacctga agacgacggg caaatacatc gacactcggg gcaacttgct cagtccgggt      420
atataccgat tggggatata gccacatggg ccttacggaa gaacggcaac atgtggtgct      480
cacacatcga aagaaatcga tgtccttgac gatgaccatt tgctgatagt cttcttcgac      540
atcgctgcgc gaaggatggc ttcaggatcc tcgttatatc ctttggtcga aactgcatgg      600
ccttagccac acgtagcggg gttttgagca gcccttcgcg ttagggctct cgccgagcaa      660
cgacagtact tgggcgtaat gctgttcaag cggctgcagg cttcttcttt ttctatttct      720
gtcatttgtc agtatcttga cgaatcttat ctcgtagcac ataaatctcc cgtgcatatg      780
aaggaatgat tttttgagtt gttgcttagc ttcttcagct tcctcacgag agcgaaatct      840
cctacaagga gccgccaaaa aggtgctcgg taagtcagat agaatgcac tcgggatgca      900
gctgcgttat ttgagctgct cgtcgattgg ctctcgctta gaggcagcca tattgccatt      960
gtatacctgt atccgatagc ttggatcaaa cggatattgc tctcgccctc gatcaaacgg      1020
gccaaacgtc ggataccttg cccacggcag ctttacggat gcaggctgat agatgggtgtg      1080
atgccttctc cttcgtgctc cgcactgaga gcttcgaaga tgctgatggg gctttgctat      1140
gagccgatgt ggaaacctga gcttccgatg acgaatgcaa accaacgaaa gcaataggag      1200
actaaaaaga aaatcggttt catctgttcg tttctccttt tgaaataaaa ctgcgccgaa      1260
aggggtgtgaa acaaaagcaa tctcagaatg cttcgatgat aggcaagaat ttgtctaccg      1320
agaagaagcc cctccgataa gccaccatc tacatccgca cggctaaaga gtctttggca      1380
ttggctgcat tgcaactgcc tccatagaga atggaacaac cttcgcaacc tcttttccat      1440
athtagcggc tatactctta cgaatatgtg atgcactctc tgagcttggg ctgccgtagc      1500
cgtcttaccg gtaccgatgc ccacacaggc tcgtaagcaa ggatcaattt ggcaaagtcg      1560
gtctgatcaa agtaaacagg gcttcttcca cctgacgagc gactacctcg aagtgtctgc      1620
tgcttcgcgc tcttccaaga cttcgccaac acagaaaatg ggggtcagcc attggacaaa      1680
gccaaactta cttcttccat caggattggg gatgttcag atagtaagca cggcgttcgc      1740
tatgtcctat aatcacatac cgagaccggt actggctacc atagcagcag agacctctcc      1800
ggatatatgca cccactcctt atcggcacag ttttcagctg caactccgat acgtgtggta      1860
tcatggctgc cgcaataact gccaaatgga tgaatgggg tccgataatc agtcacagtt      1920
gatcgtagcg cctttcaaag ctgctccaa ctcccttgcc atgcaagccc ctcttgaggg      1980
gttttgttca ttttccagt

```

(2) INFORMATION FOR SEQ ID NO:1072

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 788 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...788

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1072

```

ttcaggcgaa gggtatggag actgccgaac ccggcatgtc gtgtgccgac tttataaacg      60
ctctgtagag atggccgagg aagcaggggc tgccgataat tcatggggac gaagcagcaa      120
gctaaatttg tgggacatgg cataggatcc agattaatga aatgcctgta ctaatggctc      180
gcagtaaaga gatactacgc ccgggatggg gatagccttt gaacccaaat ttgttcttcc      240
cggtatgggg ccgtaggtaa tgagaatagt tttctggtta cggaatccgg tgtaagaaac      300
taacgggtctg ttccgaagag ctgatagatc tattggctgt agcaaacaat aaacattgaa      360
tccaatcatc taacagatta acaacaatg aacgaatcaa acaactctt agtacgattc      420
ttctttttat tctgtactc ttccggctct atatgccggt cagccacggg aggtcaagcc      480

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agttcgggaac	tgattctgat	gattccccgat	ggtacctctc	tttcggctgt	ttctctcgcc	540
gctggatatca	gcgatacctg	aatccccgacc	gccggcattt	ggctatagtc	catatatatg	600
tggtactgtt	ctgacctatt	cgtcgatgc	cccgaattgag	actctgcacc	tactacatcg	660
tgctatatga	caggtatgcc	atccaaacgg	gttttgtgtc	gacttatcct	gtcagttcgg	720
gtgatgcaga	tctgatccgg	tgataaggc	tctgtcttat	tctcctttgg	ctacttttct	780
ggagcggc						788

(2) INFORMATION FOR SEQ ID NO:1073

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2355 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2355

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1073

gcctcatcgg	gcgtcgctat	cgtcaccgct	acagtcctggg	cgatgccata	ccgtacgtgt	60
tgcccaagcc	aatctggaca	gaaagcaact	cgacttcgac	ccgtaagcta	aacgatcctg	120
cgaaaccatc	catttgcaga	tcctttctcg	ccgaatccgg	tggtcggtgg	atacccaaaa	180
agtaaggcaa	ttttccccga	cctcagtcct	ctgtgctcaa	gccgtttggt	ttagatggcc	240
aagcctctga	caaaactctc	taccacctcc	gatacaaaat	cagcgagagg	gggctactca	300
tcttgcaacg	tttttcgttc	gtaaaatttt	ccgagtatag	ctcgcaaaac	gtggtctgag	360
aatcttttct	tttttggttc	agaatttttt	tgtcccgaac	caaaacgaaa	tttttttcgc	420
gcgtgttttc	aggatttccg	gaccactttc	ttctgatttg	cggttcgtct	ttttctgacc	480
gatcgcactc	ttaagaatac	caagaagcct	cttcggacta	tatcttgtgt	ggagctcttg	540
aggaggcaat	ggaaaatgaa	gagacaaaag	caccgaaaact	tacgtggtca	gaagcaaaat	600
cgtttggcaa	tttcagattt	aatactacct	ttgcaaagca	aaacggattt	ttgtcttttg	660
ctaagaacat	ccggaggccc	attcgttatc	ggttaggacg	caagattttc	attcttgaaa	720
gaggggttcg	atccctatg	ggctacagaa	ttaaaattat	cacaagagaa	ggatatggca	780
aatctatttc	atcagagaag	cgaaattcgt	agacaaatgc	acgcagactg	cacatcgta	840
ctatgcccg	acggctcgta	atgcagtgaa	agcgttcctg	gcctgacgga	ccgtactgaa	900
gctgaaaaga	aataccccgt	attggcatcg	agcttgatcg	cttgcccgcc	aagaatatta	960
ttcacaagaa	taaagccggc	atctgaagtc	aaagctcgct	cgccgcatca	atacattagc	1020
gtaagggaag	ctctctccct	ctgctcgta	ttgtctgcga	agcggagacg	agtgtcagct	1080
cggtttgccc	cattcgtcta	tcggtttaga	cgcaagattt	tcattctgaa	agaggggttc	1140
gattcccccta	tgggttacac	gcagaacgaa	tagcagtcct	atacgaaggc	tgtgtcaaag	1200
gattaccccc	tttatgacac	agcctagtcg	ttttgctgtc	tatactcaac	tgagaagagg	1260
ccggaatttc	ctctagagag	gtatctccca	tggttcggat	gtctgttcca	ttccattatt	1320
ctcttgtttt	ctcatggcag	tacettatca	caattgaaaa	cagcaacact	cgaggaagaa	1380
ttggctcaaa	caaggtttta	ttcgtttttt	tgcatagata	aaaaagacag	caatgaagaa	1440
agacattatc	atattgggga	tcgaaagctc	tgtgacgaca	cctctgcagc	cgtggtcagg	1500
aacgaaacta	tgcttagcac	gtgatcgccg	gacaggccgt	acacaaagcc	tacggggggag	1560
tggttcccaa	ctggcatcgc	gtgcatcaca	gcagaacatt	gtcccggtag	tcagcgagct	1620
atcaaacgtg	ccggcattcg	caaagaagaa	attgatgcca	tcgcttccct	cgtggaccgg	1680
gtttgctggg	atcgctcctt	gtaggcacca	gctttccaag	ggattgtctc	tttcattggg	1740
cattccgatg	ctggaagtca	tcatttcatg	cccatgtcct	ggccaacttc	cttcgtgagc	1800
cgggtgagga	gtccagcatc	cctctttccc	attcctgtgc	ttgttggttt	cagggggcaa	1860
cttcagatta	ttctggttcg	ctccccctac	gatatggagg	taataggaca	gcgatcgacg	1920
atgcagccgg	agaggctttc	gacaaatgtg	ccaaggtgat	gggttggttt	atcccggagg	1980
ccccatcgtc	aataagttgg	cttcggaggc	aaccccgatg	ctttccgctt	tgcccgtcct	2040
catgtgtccg	gttacgacat	agcttcagcg	gactcaagac	atcattcctc	tatactctgc	2100
gcgaccacct	ggccgaagat	cccgaattca	tagaaaagaa	caaggccgat	ctgtgccatc	2160
tcttcagcac	acggtcatag	acatcttgat	gaagaaactt	cgccagcggc	caaagatcat	2220

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agcatcaaac aagtggcctt ggccggcggt gtatggccaa taccggactg cgcgatgctt 2280
ttcatgacca tgcccgcgt tatgctggac tgtattcatt cccaaattcg cggggatcca 2340
atagagtcga agttt 2355

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(2) INFORMATION FOR SEQ ID NO:1074

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 637 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...637

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1074

```

accttatgga tggccagtcc gtcagaatta aagaccaaag caaactatgg tatatacgaa 60
tcggctgtaa aaaagccggt cacaaccata ttgatattgt ggcgatagct attttcgggc 120
tattctcact gagtcgtctt tccatcgctt gtatcccaag attgagacga gcaatatcat 180
ggtcgtgacc tcctatccgg agccagtgc tccgacatag agaacaacgt tacgaaggtc 240
ttggaataac gcttaacggg gtttagcaatc tcaagcacat tacttcgaag agtcggagaa 300
tgcttcgctc attacgctcc aattcaatga aggtgtggac atcaagtggc taccaatgat 360
gtgcgcgaca agctcgatgc cgtctccaac ttctgccga tgatgtgaac aaaccgatga 420
tcttcaagtt cgggtactgac gtattcctat caccatgcta tccgtgcagg ccaaagagag 480
tacgatggcc tgtcgaagat cctcgaagac aaggtcacga atgctctggc acgccttgag 540
gcgtaggtgc ggtgagcatt atgggtactg tgaagcggga aatacaaggt attgcatgcc 600
ggccaaactg gaagcataca acctgaccgt agaagct 637

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(2) INFORMATION FOR SEQ ID NO:1075

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 814 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...814

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1075

```

ccatactggc tgaagattgc gatcgctgca catcatcgta agctaagcag aagcatgaag 60
aacgatggct aagcagtgat gaagatattt gctctgtggg aaggatatca gaagattgtc 120
aaattatttc tttgatgatc ggaataggtt ctgtccgata ttgcaatcaa gcaatatgaa 180
tttgaggac cacgaactta cttcaattag cggatcacag agcgagtgc aaggaagagt 240

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caaaagcattc	ccggatccga	ttgctttttc	ttataccttt	cctgaaaagt	gggaaaaaga	300
cctgttcaaa	agctggtaga	aaagcattgg	agagacgaac	ttcttttagta	cgagcaccca	360
ctggtgctgg	aaaaacggat	gcagcactct	tggggcttct	catcaaataca	aacacagaaa	420
agcagaccgc	ttgattattg	catgccact	cgttttacaa	caaatagcact	agctctaagc	480
gtatcttcga	cctttcttct	acaggcctgt	atcattccag	tgcattggaca	cagaatttcg	540
tagcaaaata	gacaacgggg	aaatagcttt	agagcaggca	agatactaca	taaccaagct	600
cgcttactac	agacccttat	aacgggtatgc	accatagtca	tctcctctct	tcattgactc	660
tttgtagcga	ggaacatcag	accattcttt	tgcactggca	aatgcatgtc	tcggtattga	720
tgaggcagat	ttctagatca	atttacacaa	gctaatatat	tagtattact	agagggtcta	780
aaattggaaa	gtgccgatat	tgctgatgag	tgcc			814

(2) INFORMATION FOR SEQ ID NO:1076

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 601 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...601

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1076

cggtttttga	ttagtcttct	gtagccttgg	ccaagaatat	aatagtcggt	atcttttggc	60
ttcaggcaga	tttttgggtg	atagcagacc	tttatcggcg	gtcttgctat	cacctcaat	120
ttgtggcttt	ttctcggttt	ttgtcttatt	cggaaaaaaa	cctttatgtg	tttagtagag	180
tcttctgtag	atacctcgat	ctcatctaca	gtaagctcta	cgtagttggt	ggcgagcaat	240
ctttgtgtgt	cttaagcact	gattccgcaa	agcctcttac	ctcttcgtcc	ttcagccgta	300
ttcgtgcaaa	ggtttcttgg	taagaaggca	tccgagaagt	tcaccagctt	cggatatacg	360
tattcgggct	ggcagttcag	tatcttggag	agttccagtt	gagttcgact	atatagccga	420
aaggattctt	cttttgggtat	atgtgaatac	ctctgtgaag	aactgatagt	ttgcttctcc	480
atgcggcacg	gatatgtcct	ccaacgggta	ggatagtgcg	tggacggctc	tactccgcat	540
tccgaagcta	taccggcata	gttgctggcc	atgatcattc	tccagcttcg	agcggattca	600
g						601

(2) INFORMATION FOR SEQ ID NO:1077

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 596 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...596

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1077

ccttacaggc	aagaaagccc	gtatcaaaga	gcgtcgcgta	gctctttctc	taaagactaa	60
tttgcttata	acggttatta	ggggggctta	tagagataat	cctcattccc	taagtattat	120
gcagagaggg	tgtatcgaaa	attgattcgg	tacaccctct	tctctttaac	ccagattggt	180
cattagagat	taacgttaga	atcaaggcat	tacttattac	tttcaaggaa	aaagaattat	240
gtccgataag	catgtatttc	acatcacccg	attggtgaga	tgaaattggg	atgcgatgtg	300
atctctataa	gaaggtaagt	ggcagttatt	aagcagatta	caagaaaaat	ctctaataac	360
ggccattagt	ttttttgaat	gcaatccact	ttttccatta	acataggctc	ttataaactt	420
gaaggattaa	gcctaattta	gctcaccaat	tggttggtga	gacccgggta	acacctctgc	480
ttgcaacaac	tcccagtcct	tcttcaagac	acgctcaata	agcttgagga	gaaaaaagtg	540
gactggtcgt	gcgatagggtg	cttctgnaac	aacagggtat	cgaatcctac	aaagca	596

(2) INFORMATION FOR SEQ ID NO:1078

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 956 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...956

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1078

ccatcattgg	ttacagtccc	gcttttaggg	ttaggcatca	atccgcgagg	cctaaaacac	60
gtcccaatgc	accgatttta	cccataatgg	caggcatgtg	atgatgacgt	ctatgtcagt	120
cccaaccagc	ctttatTTTT	tctatgtttc	gtcaagacct	acatagtcag	caccagcttc	180
tttagcttca	gcttcttata	aggagagcac	aatgccagaa	cgcgatctg	ctttccagtt	240
ccgtgggaag	cgttacaacg	ccacgcacca	tctggttagc	ctttcggggg	tctaaccxaa	300
gcgcacatca	atatccacag	atgcatacaa	attggtcgtg	gtgtctcttt	caccaaggcc	360
gatgcctccg	atattgtgta	tgctttcccg	ggtcaatctt	gctaaaggct	aacttctggt	420
tttttgtag	tttgctcatt	tgagtaagat	taaattattt	attccgggaa	gtccccttta	480
atcgcgatac	catgcttcga	gcagtaccgg	ctaccatttt	catggcagct	ttgatatacga	540
gcaattcaaa	tcgacaagct	tatcttctgc	gatcgtacgt	acttgctcca	tgtgatttct	600
gctaccttct	tacgatttag	ttctgcagaa	ccactctctg	tttgctagct	tcaaggagtt	660
gaatagcaac	aggaggagtt	tttacgtaaa	atcaaaagac	ttatcggcag	agtacgtaat	720
tactacaggc	aatacttgcc	ggctttgtct	tgggttctgg	cattaaattg	cttgcaaaac	780
tcataatgtg	atgccctttg	caccaagtgc	aggcccaacg	ggggtgaggg	attgctgcac	840
caccttttat	tgcaatttga	tttgctccagc	aacttcttag	ccttggtcta	aaataaaaaat	900
tcagacacac	actatatcaa	tgcgagagag	aagatccgaa	cacaacctca	tctttc	956

(2) INFORMATION FOR SEQ ID NO:1079

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 929 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...929

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1079

```

aggatccccc gatgataagt gtgggacgct cgccctctcc cttggcttcg tcagggcctt      60
gcgaatttca tccgcatcgt tacctgcaat ctctattact tccaacccca tgcacgatat      120
ttcatggctt ccgtcttcgc ttgccactct ttcactgtcg tagaaagctg tacgtcgttc      180
gagtcgtaga acataacaga ttgttcagcc caaggtgtcc ggcgattcgg ccggctcctt      240
gtgatcttcc tctgtattc ctccatcgga aatgtaggca tagatcgttt ggctatcatc      300
cagccgaagc gatgagcgag gaatttggtc gcgatggctg cacgacagca taggtgtggc      360
cttgtcccaa ggggccggat gtgttctcca ctctgtcgtg acatctactt cggggtgtcc      420
gggtgtgatg ctgcccatt gcggaatgct ttgaggatcat ccatggagta cttgcccgtc      480
aatgccagct agcatacagc atcggggaca tatgtcccgg atccaagaag aagcgatcgg      540
accggcccat tgcgggttct tccgggtcaaa gatcagatac tcggagaaaag tacgtttaca      600
aagtccgctc cgcccatggc tccgcccggg tgaccgcttt ggctttttcc accattgcag      660
cggccaatac tcgaatattg tccgcacctt gttcatcagc tttttgtcat tcattccttc      720
taattatggt gaggtagatt atatcttaaa ttgcgattgt cctgtgaccg aagacatctt      780
ttccacaaag gtaagaagtt ccgttcagag cacgtgggtt actatattaa ataatgatct      840
ttcggaggtc aagctttgtt cctctccct taagtgcact gctcaagctt ttgatttcaa      900
aagacaactg gtcggagtcc ggggatactt

```

(2) INFORMATION FOR SEQ ID NO:1080

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 4375 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...4375

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1080

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cggtaaatga aatagaaaca aaacggttaa aagcacatct ttgtttattg gattatcgta      60
cacaaataag aaaattatag atatatatct atcgaaataa gattatcgga ttgacaaatc      120
ggaatttata ttataataaa tcctatccaa aaaatatctt catttatctt gagtatattt      180
gccgatataa ataggccatg agggaaataa cggatattgc tgtagccgaa tctggtgata      240
gtgactcaaa gagcggttg agactaaaaa tgctaaaagc tggctgaaaa gtgtagcgct      300
tttgccaacg gaataggagg aacgctctat ttcggcgtgg aagtcgcacg cgccggataa      360
ttggtgtaca ggatattcaa ctgacaatca gcaaattaca gagctgattg tggctcgat      420
caccgcgct ccggtttttg atgcatcccc ctgcaacaga aaggaaaaga tattctggct      480
gtcagagtgg ttccggaaaa catactcctt tctactatgt tcacgatcat caccatacac      540
atatatacgt atgggagacg agtctgttcc ggcgaccgat tatcagctaa tgagcttata      600
ctgaaaggaa gaaacgaaac atatgacgt caaataagga gaaactgccc acagattata      660
gtttttacatt gttggaggcg acatattgca taccttgaat cagcatatgt cagatagcga      720
ctatgtttct ttcggttggc ggtagaagat ggtcgtttga caaacgccgg attgcttttt      780
gccgccaatg tccgttacct gacagcagag tcttctgtac acgctggaat ggggtgcaaag      840
aggatcagtg catgaagatg cgacggatga tgcagaatac agggcaatct gatatacttg      900
ttaaaaagtg ccactgagtt tattcgcaga ataccgcaa aggatggact aaaacagcta      960

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atggaagagt	ggagaaaccc	actatgccga	acgtgcttat	tttgagggag	tggatgaacgc	1020
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gtttagttat	ctcatctccc	gggggaatct	atggaggggg	agaattgagc	ccatgagcga	1140
cggctcttat	attttctaaaa	ggcgtaatcc	gatattgctg	acattttcag	ccggctaagg	1200
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gccgtattct	ccggtatccg	catgccttgc	ccggaatccg	agatatggat	aaggaaagctt	1980
accgtacggc	ttttgaggaa	atcatgcgcg	gatagattcc	ggggtattgg	aaaagggtgt	2040
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cacaaaaaga	gataagagag	caagagtggg	cagggactat	atcagggaag	tgcttgagaa	2340
ccactgtcgc	aggtggagat	gtcggagacc	cgtaccttta	tggccgggaa	tatttgccat	2400
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gaggtgcatg	aacgcaaat	ttacggagat	atttgggggc	tgtgggtaag	gatgctgcga	2580
gattgtatgt	gaacatcgct	cgatggaatt	gtttccggg	gcattccggc	tttatgtggg	2640
aggaggataa	acggagattc	ggtattcgaa	gacgaatggg	aagagacctc	ggataggcgc	2700
ctactctttt	gaatgtgctt	ggaatacatt	ccgtcggaga	taagcggact	ataaatgata	2760
atgcaagatg	atggattcgg	attattcgga	taaaaaggcg	taagcgtatt	gatggattta	2820
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ccggtacggc	catgttgaat	tatgctcctg	ccgttgccag	gctttttaca	gggggattcc	3060
tttggtcgcg	gtaacggccg	accgtccgcc	gaatggatcg	accaggacga	gggacagacg	3120
attcgacagc	agggagtatg	gccggttttcg	ttaagtcgta	ttgcagcttg	agagcggaat	3180
tcgatcttcc	gcctcggcat	ggtatgcaa	tcgcggtttg	aatgaggtgt	tgaacatgcc	3240
ctgatgcgcc	ggcagggacc	cgtacacatc	aatatgtcgt	tttcgaaccg	ctatacggga	3300
cttctcctcg	atattccgga	aaagagcggg	cgtaacgttc	gtgagggaac	ggcaagaatt	3360
gccggaagag	gtatgggata	tctcgtaaag	cggttttttg	aagctcccag	agtgatgatc	3420
gtcgccgggt	ttatcctccc	gacgaagacg	tgtccgccc	attgcaggat	atatgcaaat	3480
tccccatacg	gttttggttg	ccgagagtct	ctccaatatc	cgtacggaac	ggggatatgt	3540
acggcagacc	gggtattggc	tgacgcccga	gaagacgatc	gctttatccg	gaactcctta	3600
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tgcggagcat	tggggataga	cgagagggtt	ccggctccgg	acactttctg	tgcgcttacc	3720
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ggcaccggag	tccctttcac	cggaaggaat	ttcctatgcc	ggtcgtggca	gaagataaaa	3840
cggaaggcgc	acctcctgca	ccgtaccttt	agggcgatgc	ggggtggagc	gacctcaagg	3900
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gcccgtacgt	atctccaatt	attcgaacac	gcgcattatg	cgggaggaga	atggagcatc	4020
gcggaaccac	cggaatcgag	ggggccactt	ccacggcaat	ggggtttccg	aagtatatc	4080
cggaaccacc	cttttgatta	cgggagatct	gagtttatgt	acgattccaa	tgctttgtgg	4140
atgccttatg	taaacgggcg	gatacggtaa	tcgtgatgcg	taacggagga	ggggggatat	4200
tccggtttat	tcccggccgc	attctttgaa	ggaattggag	acctgtttcg	agactccgct	4260
cgagttcccg	taagggaaat	ggccggagct	tacggatgga	gatatatgaa	ggcgtttccg	4320
ccgaagaact	ggaaacggtg	ttgccttcgt	ttttcgcac	cgcgacagcc	ggtcc	4375

(2) INFORMATION FOR SEQ ID NO:1081

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 454 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...454

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1081

gaggactgat	tcagagaaaa	acagtcctct	aacattattg	tagcatttgc	atttattaca	60
atcaatgtat	aatcatTTTT	gccaatcac	acttttactg	agagcaaacg	gtatcgctca	120
tacgcatagc	ttttttaatg	acataaaaagg	gatatctatc	gctacatctg	tttcccatct	180
tctaaaatcc	gagtaatccg	aaaagattgt	aatggccttt	ttatgtatat	tctacatcgn	240
ggcatatggt	tcgagctcgc	caaaaatttg	tagaacctat	ttcttcatca	aggtctctat	300
tggattttatc	aaccaattcc	gctttgaaca	tctctctcaa	gcgtccgcca	ttacgggctt	360
cgctttcttg	tggaagaaaa	tactgtctng	atagcattat	accttttggt	ttaagccaat	420
tggaacctna	aaatttagcc	tggcagaaat	acna			454

(2) INFORMATION FOR SEQ ID NO:1082

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 454 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...454

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1082

agttcccgaa	tccgagttca	tccatcttgg	ccaccatagc	tttggcacgc	gcgcagcctc	60
gatacgcccc	tgcggaagaa	gagccaactg	gctcacctgg	ccgatacgaa	gagcatagcc	120
gaaccgttct	tgcatgctgc	cgcacaactc	cacatccgat	acaagccgct	gcatccatgg	180
cctcatccgc	attcttttgg	aaatggggat	agccgttggc	atcggggata	ccccccgtat	240
tgacgaaaacg	aatccgccgg	actgaatgat	cttgtcataa	gccgagcgat	ccacatgagg	300
tctctgatca	caggggaagcc	ggccgagcgc	caaggctcta	tcggatcgta	tcaccatcat	360
cgaaacgacg	catgtgcagc	tgacaagtgg	tgtgctatcg	taccggccccg	tggggatgac	420
cattgatgta	gagtgagcac	aaccgcaaat	acct			454

(2) INFORMATION FOR SEQ ID NO:1083

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 881 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...881

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1083

attggctttc	agggctctcta	ataggagcct	tgccgaatcg	accntgctca	acggatgacc	60
tctttgcgct	cactcgtcca	tggttatcg	gcaactccgc	tcctgccaga	tggatgatat	120
gcctcactcc	ttgcagtgct	tcgacctgat	tcgccgtttg	ggaacgtccc	attcatattc	180
gttttcgttt	cgtttgggcg	cgtaaaaatg	cgatatggagt	aaccgtttcg	cacaagttct	240
tccgaagtgc	ccgtgcaacc	atcccatttg	cccggtaatc	aaaacaacgt	cttttgcata	300
aagaaaccca	caaaattcaa	tccgctaaga	caccgaaaca	aattataaaa	tgggatgcac	360
aagaaagtgt	acctcaatgg	aaaaatacgc	acaaaaaagt	tttcaacaac	gaagcggagt	420
ttggaatgat	tctaaataag	ctcctaaaga	gagggggcaa	tcggagttaa	aaagacaaga	480
aaacggactt	tgcaagtcga	aatccgcttt	tcggaagatc	ttgaaacgat	ttatatataa	540
ccattttcaa	tttatatata	gattgtttta	gatttatata	taaaacgttt	caataaatat	600
atagatcata	aatgatttat	acataaattg	caggataaaa	aggccgattc	gggaggtgat	660
aaaacaaatg	cacccaccga	gtttaaagca	aactcagtgg	gtacccggtc	tcttgggtgg	720
attaccgaag	gggtatccac	ccttatacat	cataagtcta	tacgtctctt	ttctctaacg	780
cagtagtgga	tgtgaataaa	anggagcgac	tgtagcagtc	gtatcggcag	atgttggagg	840
tcataatata	ggtgtgcata	tcaatttagc	agtttattaa	t		881

(2) INFORMATION FOR SEQ ID NO:1084

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 576 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...576

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1084

gggacattcg	gtatgtatat	cccaagaaat	cgttcaagta	tgaaaaagga	aaactccgac	60
tatggatgat	ctggtggaag	ctttccttac	agcttcgtcc	agagtgagac	caactcgggg	120
ctggggtatg	acaagaacgc	caatcacacc	tgattacata	tgccaaaaaa	gaagagaacg	180
gtacgaacac	gctgaatacc	gctgggccaa	ttatgacaag	attcataaca	aagatttgtg	240
gagcgacat	ttacgtatac	atcatctgcc	aatgctctct	acacacctca	agtaacatca	300
atccgaccaa	gggtctcggtg	tgctgggtcat	gggtggaata	tctccgggca	aacggatcgt	360
ttggtctgat	cgcagtggaac	ccatgccaac	gggtagaaga	catcgtaatg	caagaaggca	420
gcatgaagct	ctacccgaat	cggctcaaga	atatgctgtg	attagcctgc	cgacggcagc	480
aaactgcaag	ctgttggtta	cgatatgcag	ggcagaagta	gtcgtctgagc	ttcttcttcg	540
cacgaataca	ggctgaacgt	gcagcacttg	gctaag			576

(2) INFORMATION FOR SEQ ID NO:1085

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2189 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2189

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1085

cgtccatcat	gccaaagagca	gcagaaacaa	cgatacagaa	gcccgtcaag	agagcaacat	60
attggggagt	gaagatttta	gctttttcat	ttgttcttcc	tccaaaatgt	ttaggtttca	120
tataagtgtt	gatcagaggt	gtcatacgtt	cataattagg	atggcgaatg	acattccttc	180
cggataagcc	ccgaattacg	gatcacgacg	gtcagcaaac	cgatcagaca	gccgtaaagg	240
atctgccgga	cttgggtcatc	ggcgaagtca	catagtccgt	ggccatgaag	atgggtccgag	300
catcataccg	ccggagaaca	ggtggaacca	cggagtggcc	gggaggatgt	ggggctggcc	360
aagtgcagaa	tacctgccag	tacgatcaca	gagcgaagat	agacacgggg	atatgccacg	420
tgataatctt	cttgtacagc	aatagaccaa	tccgagaagc	aatgcgatag	cactgacttc	480
acccaaagaa	ctgcttcacc	gataaacatg	tgcaggtctg	tggggatatt	agccaaagcg	540
aggtgtcgcc	gctcattgct	gctttcatca	ggccgagagg	cgtagcacgg	tctcggcatc	600
cagataggaa	gtcatctgtc	cttcggtagg	ccagagatca	tctgggcagg	gaaagagatc	660
aggaggaata	cacgaccgac	caaagcgggt	tgaagatggt	gttccccaa	ccgccgaagg	720
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gctcgcaggt	tgaaagccag	caatacgccg	gtcaagatag	ctgagccgtc	catatggtag	840
gctccttgcc	caacatatat	ttgctgatca	ggtattccac	gagcaacaag	taagaacgga	900
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ctttggatac	ccatcacagt	cttcttggct	tggcgatat	aatccagaga	ggacggttgg	1140
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tgtttcccg	ctcttatata	aggtgcgcgc	ataaggaaag	ccggattgag	tcccatcgga	1260
cacactccga	cgcattggcg	catcggatac	agtcgcgcac	aggcttgoga	actgcctctt	1320
ctcatcgaga	atcaatactc	cggagctgcc	tttggtcaca	ggcacatccg	gtacagcaga	1380
gcgcgtccca	tcategggacc	tccgcgcatg	atcttgcccg	tttctccggc	aagccacctg	1440
ctgcttcgat	caaagccgca	ataggagtac	tatacgaacg	aggaggttag	acggacgaga	1500
cagttttttt	cctgtaacct	cacgatgcgc	tcgaccagag	gcttggtctt	ctgtactgct	1560
tcgtacacgc	gaataccgta	cccacgtttt	gtactacggc	acctgtgctg	ataggcaggc	1620
accgcttttt	acctgcttgc	ggatcactgc	atcgatcagc	tgcttccacc	gccttgagga	1680
tattgcacct	tcaacggcat	tacctctatg	cccggtatgc	agtggccagt	ttggtgaggt	1740
gagcaatagc	atctttctta	ttatctcaac	tccgatgacg	gccttgttta	cctgaatggc	1800
tttcatcagg	atatcacgcc	gatcatgata	tcttcgccgt	gctccagcat	aaggacatgg	1860
tcctcgtcag	ataaggctcg	cactctacgg	cgttgatgat	caggatctca	gtttgttgcc	1920
cggaggaggg	gacagcttca	catgggtagg	gaaggtagca	cgccaagacc	cacaataaccg	1980
ggctgcagaa	attttggcta	cgatttcttt	gcattccagat	tgcatctctt	gacgatggct	2040
ggtgagcgat	cgatgccctt	tcccatctgt	caccttctac	gctaatagaag	actgcgggct	2100
tgggataccg	cttgagtcgt	atacgtttac	gatcttcagc	accttaccgg	acacagttag	2160
tggaatattag	ctgatacgaa	tcctccggc				2189

(2) INFORMATION FOR SEQ ID NO:1086

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1717 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...1717

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1086

aggaatagga	tcgaagatca	acaattatcc	tatgtcctcg	aaagtatcgc	acagagcgag	60
acggacgctt	gatcgcaacta	atcgtgccgg	acagacagcg	atagagcata	aagggatctc	120
tccggatcag	gcatgggctt	atatcggaag	agccgagccg	aactgaacgg	gcaagtgggt	180
gcatacgaga	aaataaggcc	tttgtccgcc	atgacgaaga	gttcgagaag	acacccaaac	240
acagctcaaa	cgtttccctc	atacttgatt	gcgcaagatc	gggtgcccc	gtcttaaaag	300
gaatagccat	gcgtaaggct	tccggataaa	agggctcaat	gcaacagcat	ttggtcgttt	360
tttttgggtg	tacccaaaaga	aactgtatat	ttcgccgtta	tagaacatta	attacacttt	420
taaccccaaa	aggaaatgaa	gaatttggtg	cttttgcagc	tgtaatcgca	gctgtatcat	480
tcgcttcttg	aactctcagg	ctaagactga	agaagctgct	gactctacgg	ctatggattt	540
gccacttttg	tagaagatgc	agctcctgta	gttgatacgg	ctgctatgag	atcgattctg	600
ctgcaatgaa	ggctgaagaa	gctactgaac	aagccgcaa	taatccaacg	gctatttagc	660
atcccccgaa	tcatttgtgg	ggtaagtata	agtctgactt	caaaagagtc	ggacttatgt	720
ctctttttca	gttataactt	ctcgcccttag	cgagctgttg	caacaaaaaa	gggtattcgt	780
tatcgtcttt	cagaggcttt	aacgaatacc	cttttttgat	actgttgctg	atgaggctgt	840
gtgtgctgag	caggctgtta	tctcatgttc	ttgagttgct	gcggagttcc	tgtctggcaa	900
gaaatatacg	gctcttcacc	gtgccgagag	gattccaaga	gtctcggata	tttcattgta	960
tttatatccg	ctcacgtaca	ggagaatggc	tgcttgagag	tctcattcag	cgatgcaatg	1020
gccgccgttt	ctctttgatg	gtcatagtgc	catcgggcgt	atcctctcct	ccctcattag	1080
gagaggtaca	ttgtacggat	cgctgttggt	atcgataacc	gtttgtggcg	aaccaactta	1140
tgatagttgt	tgatgaagat	atttcgcagt	acagtggcac	ccagcctttg	aagttgacat	1200
tatcaacgaa	cttgtcctcg	ttatgagcac	acggagagtt	gtatcttgga	gcaaatcctc	1260
tgcatcatcc	cgatggcagt	cagagtcagg	gcaaaattgc	gcatattgtc	ttgcagactc	1320
agagtttttc	gcgaaattgc	acactattca	taataagctg	tttctttggt	gtgttgaaagc	1380
caatggttgg	aagattcgtt	ccctcctgcc	acagacacaa	aataatcgaa	taggtgagaa	1440
accctaataa	acagcgtatt	aagcataata	acggcatcaa	tgacatgaaa	agaaaccatc	1500
ttcagaaaag	gcggcaaccg	ctcgcaaagg	gtttgtggat	aagctcccga	ccaccctggc	1560
ggacatatgt	actatgcctc	ctactatcaa	gaaaatgctc	tggtgaacaa	ggtgctgaat	1620
gctgcaggct	aatcggccgc	ttcggtagcg	gacaagtgct	gactcttatt	atatgctaca	1680
ggcgggggag	ataacaatga	aagaaaaact	gctcctg			1717

(2) INFORMATION FOR SEQ ID NO:1087

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 982 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...982

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1087

cgctaaaaat	cccgtaacgg	aaaactccgg	ttacgggatt	ttatttgggt	ttagaaagag	60
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gtgggacttt caagtgtagg tttcagtagc aaatacctga gtgaccggcc gtaggtgcgg 120
atctcaatgc gcttaccgaa catgacagat cgccatcgag gtgcattacg cctctgtct 180
cacgctcaat gatcagtttt cggccttata ggtgtccaga ttggagttgc tgttgatacg 240
cttggaaga gttgtaaagc caattgtgga gcttccaatg gattgaaagg acggtaataa 300
ctacatccat tttaccatcc tccaaatccg ctaatggagc gattaaggcg ttattgccat 360
actggggcgc attggcacca agtgacgagg aagctttctc ctcaaaggat ttgccgtcta 420
tcgtcagttt ggatccttcg gtcgttttgg aggtaactct cgatcatggt tcgcgcataa 480
gtgatagggc tcgactaccc gcttgggcca atttcttgct aacctcggca tcgaatccca 540
tccgcagggtg caaaagaaag ggcgactatc cgcttcacag cagtcgatgt gcgaacatgt 600
ccggctctga tcaacttcgag agctttcccg acgggtgatg cagcttgagg gcacgtgcc 660
acccgttgcc tgatcctttc gggacgtacc cagcactaca tcggtgtagc gaaggctttg 720
ggctatctcg ttcacgttcc atcgctcctt actgcaatga cgcagtcgta atgcttctcc 780
actgttgtgc tgccaattca cgtgcatggc cagcacgttg cgaatagggtg ataagagttc 840
gtgaggatca tgggcgaata catcggttat aaggctcggg atttgctttt cgatccgatg 900
cccgatatgg nattgataat ggctagaatc tcatagctat tcangannta atcttgtctg 960
cctaattggtg tgtttccatt tc 982

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(2) INFORMATION FOR SEQ ID NO:1088

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 511 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...511

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1088

```

aaatacgaat tgatactccg gtacgtagtc ttttcggctg attgtcgctg ggcacatctg 60
gcacctcttt tcacagacg actgaatctc tctgcgagtc gcccggttta attgaagtcg 120
taaccgtata tatccagatt tactgtggtt gtccgccccat accgccaccg cttccgcccc 180
gagtaacctt ataacttgaa tctcaggata atcatccagc atggtacgta tctggtcggc 240
cacttgttca tggagcgttt tctctcgttg cgcccggtta gaccgatatg gaaatgatga 300
tattcgatcc attgtctgc atggcggcaa acatgctgga agctcggcct gaccgacact 360
aaagctcgtt ctgtcgattt ccggtatttc ttctcccaac tgtcgatcat acgaagagca 420
aaggctcgtg gcagattgac tccgtgccca ccggtatttc tgccatgaatt ggatatagcc 480
attgtcggac gaggaagaa ttcggtttga c 511

```

(2) INFORMATION FOR SEQ ID NO:1089

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2016 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...2016

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1089

```

gttcgccttc cggcagattc tttgtggtgg agcaggcacc tgtcagtaga caaaaaggat      60
ggggagggaat acttgccgta atactttcat cggatttctat cgctttgtcg gaatgatatc    120
cgtctgcacg gataccggct cctcttcggt ttgagagctt ctgctttcga cactatggtt      180
ttcgtctctt tcttctgccg aaacggaaca gatcggacaa gcgcgccaac tttcgactga      240
tcacaagccg ataccggtct ccgttatctc tccttcgagc agattttcat tgttttcttg      300
tggaagagtt tgaggtgctg tgctcctgat ttgtccagac ggtctccacg gatacgttgt      360
ccaccaaagt cctttcctta ttggtcggca catggagccg gaagcgacag atcctccgat      420
cacgacacgg atcctgttgt ctagaactgt ttgctgaagc tgtacgtgaa gtccgtatat      480
gtaccgccgc atcggtgcca tcgtgacttt ccataccgat gttcagtcg gagccatcga      540
taccttgccc aaagcactgt tgatcattcc ctgagcatag ctgctgaggc attgtcaaaag      600
ttgaaccacg tcgattgcga agccaaataa gagcctgtgc caagagtccg atggcctgct      660
ttgaacgctc ttccggcccd atacttgacg ttggggttgg atagagaagt cctccggtgc      720
ttcgacatca aacacaaatc catattcttg agcgtttctt tgacgatgat accaacatcg      780
aaatcacctt tctcgacgtc ttgctaccgc tctccatcac atcggcacgt actgctgcac      840
tgctttgaag ttgacgtaag gctcttgctc attgccgctc catgtacgta gctcgatggg      900
tcgatagtga agacctgctt acccacgacg ggagcgtata gcgcatgggtg ccgccaccac      960
tcatactgta ccgtccggtc aactcatttc cccgtaagcc ggcatagtga aagtcatgtc    1020
tctctctctt gcaactccag atagtcttga tgtccggccg agagatcgac acccaactta    1080
caaccggatc aatatgaatc cgaacaagca tattcatgcc accgaagatg ctctttcctt    1140
ttccatctca gcctgcgac ggatcatgat cgtatcgaaa agtccatgaa attcaccaca    1200
tcgcccattc gactttccgt ttccaatctg caccagtata cacatacgtg catgaagtgc    1260
caccgtgaat atccgagagc ccgaaatcgc aagtgccttg agaggaccgc gaagggaaag    1320
atcgtggagg caatcagttt gccgtacagc aagtcgccct gatttctttt gcgtccaaca    1380
cggtcattct atctgccagc atcttcagat tggctgtcat gctctggctc ctgtcaggat    1440
tactttctca ttaagattaa gaccgtcttg gccttttctt gggcgcgtat ctgataattg    1500
tcgaaaacca atttgtgaca tcgaagacca gtggcttgct cgaaaaatag aatgtattgc    1560
cgatcatcgc gaatagaccg atgcatcccg catattcagt tgaccatcga tcagaggcta    1620
tccgttttac cggcgatagc aagttttccc tcgatgaaac cggagaggaa gctctttccg    1680
ctccgataaa tggattggcg atggcgagcg ggaatcgtta aggatggcag ccatatcgag    1740
attgtttctc cggatgcctc catgtagatg ccatcgagat tgagggcagc atttccattg    1800
tagcttatct ctgtgtcagc tagtgcgaaat gatcgttacg gggttcatag aacagagagg    1860
atcaatgttg ccgatagact tgccttcaaa ttcgaactca ttgacagaga gtctccggta    1920
atcgtagtga tacctgtctc tcccccgta cgggatagtc tgcataagcg aaaaatctgc    1980
cggctatatt aggaagagga gacattccga cgtatt

```

(2) INFORMATION FOR SEQ ID NO:1090

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 507 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...507

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1090

```

cgcaggacga agtcgttctg attcagcttc catgccagga agagggtgta gtcaccttcg      60
caaattcggc cggctggagt cgcaacgggc ctatcaccgc cacgaatgcg agccttttat      120

```

atccggagct	atcagtatgg	tcagagcaaa	agccccaaca	tggcggcata	gaagacggga	180
gccagcgact	cgaaaaatcc	gtctccatga	gcagaacccat	aaagcctatc	accaccgcga	240
gaccgtccac	aggagctgca	tcatacgagc	accgcccatac	atgaaaaggt	gggaatgtcg	300
aagtcgtaac	ttgctccgca	gacagcaaac	caaccggcca	cgagagcagc	agatacagaa	360
tgatgggtaa	accaatcgat	ccgtccctta	tatcgncttc	gatctctctt	aaaagacatt	420
gctgtagtga	attgcagtgt	tgacatcttc	gtggccacgg	cttcgncctt	cggagacagg	480
ttgccttcgc	gagataatac	ttcatca				507

(2) INFORMATION FOR SEQ ID NO:1091

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1942 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1942

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1091

ctgtgctaca	gcagcagtat	ggcctgatca	ccctgcagat	gggcttgggt	cggtggcata	60
tccggtcaga	atggatgtag	cagatctggt	cgatcatatcc	tgacgatatt	cacactcagc	120
tacttagctg	cctattatcc	tgccacact	tcataatcg	cagactgaaa	aatagtcgac	180
gaaaggcctc	attcgaaatg	aggacatgt	gcaaaagctt	tggaataagg	tgtttgcgta	240
tatcaagttc	gtatctttgt	agcaaaggag	tgccggctat	gccgattaga	tgtagcaaaa	300
cgaactcggg	gaaagtacac	gatgacagac	agtatagtta	ttaccctacc	tacaatgagc	360
gggagaacgt	ggccaaaatg	atagaaacgg	tctcgctcta	cccaaaactt	tcgatattct	420
gataatcgac	gatggatcgc	cgacggaacg	gctgcgatcg	tcaaagagaa	acaggccatc	480
tatcccgaaa	acttcattctg	gtcgagagac	aaggcaaat	gggtctgggt	acggcctact	540
agccggattc	aaatggagca	tcgcgcgagg	gtatgactat	atattcgaat	ggactgcgat	600
ttcagccacc	cggtagacaa	gttgatcgat	ctatacatgc	ctgcgcggga	ggagaagccg	660
atgtagcgat	cggctcgcgc	tatgtacggg	cggaggcgtc	aaggactggc	ctaaaagtcg	720
cgtatggatg	agctatacgc	atccgtatat	gtgcgtctcg	tgaccttgat	gaatatatgc	780
gacagactgc	cggattttgt	tgctaccgcc	gcgaagttct	tgaaaccatt	gattttgatc	840
ggtacatttc	aagggtacag	ctttccaaat	cgagatgaaa	taacggccta	ttgtctcgga	900
tttcgcctga	aagagatacc	catcactttc	gcaatcgtgt	tttggaacg	tcgaaaatga	960
acacttctat	tttcggtgaa	cttttacggg	cgtgatcaag	ctacgctact	ggcacttatt	1020
caaaggattc	ccaaaagaaa	atagtacgaa	agagatgaaa	attcttcttc	gcaacgcatt	1080
atcaccaacg	agggaataac	cttccccggt	tcggtgatga	ttgatgggca	tttatctccc	1140
gtattatcga	aggagagcta	cccgcggatg	acaatcctcc	gccgatgaag	tcatagagtg	1200
tagcggctcg	aggctattcc	ccggagtata	gacgaccaag	ttcatttccg	cgagccggga	1260
ctgacgcaca	aagcaccatc	gcctctgaaa	gccgggcagc	agtagcgggc	ggagtccact	1320
cgttatggat	atgcccaata	cgaatcctcc	taccacaatg	tgggagcgac	tgtggagaaa	1380
aggcagatcg	gtgcagacac	ggcatgggcc	aactacggct	tttcttcggt	ggcacgaatg	1440
acaacatcga	tgagatcaaa	cgggtggaca	gcactctggt	cccggtctga	agctattcct	1500
cggttcatct	accggcaatt	gcttgtggac	aataaggaaa	cgctggagaa	aatattcgga	1560
gaatgcgact	gtcatcgcgc	acgcactgtg	aaaaagagga	aatcatccga	gccaacaaga	1620
gcactacaaa	gccaaatcag	ggaatgattt	ggacatacat	ttccatctct	catccgtagt	1680
gaagaggctt	gttaccgctc	atcggcgaaa	gcggtgagct	ggcgcgagag	atgaatgcc	1740
gtctgcacat	cctgcattcta	tcgaagagaa	agaactgagt	ctcttcgcga	acgatatacc	1800
cacagcacaa	aaggaaatcac	gtcggaaatc	tgtgtacacc	atttgtgggt	cagcgatacc	1860
gatacggcag	acttggcaac	aggatcaaat	ggaatccggc	catcaaaaaa	gatcggatag	1920
ggaagccctt	cgtgcagccg	tg				1942

(2) INFORMATION FOR SEQ ID NO:1092

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 597 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...597
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1092

tcgcgggtag	ccttggtcgt	tttgacatcg	ggaaagctga	cggcataaaa	gccgttttac	60
cgctcgggaga	caaggccatt	tcgctcacc	gcgacaggtc	atgaatagtt	ccggcgtaa	120
atgctctccg	gtattcggtc	cggctgagg	gtcatagcag	ccgaaccaat	gatgcttgca	180
gccatcatcg	aaaagatttt	ttgttcattg	tggtgattta	ttactgtatt	gcgtttttatt	240
gtggacgaaa	atacgaaaga	aactcgttat	ccccctcttt	aacgagagtt	gaattatagg	300
agaacaagg	ttgtcggata	aaagtgtacc	gcccctgaat	gaagcatcga	tgcaatcgct	360
atcgggtcga	taggcaagac	tcaatatgct	atgcttctgg	catacgaata	tcttcacgta	420
aatccttcat	tacagtacgt	ttgaagaata	ttcatttttt	taccggacag	caataaaaag	480
aatggatcg	tctcagccg	aaaaagtttt	tctgcagtac	agaaaaagtt	gaaagctatc	540
tgcaatcttt	atcaaagggt	tcggatatat	aaacgaagct	ttcggatagt	atccaag	597

(2) INFORMATION FOR SEQ ID NO:1093

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 722 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...722
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1093

ttttctctga	taaacgatac	gaacttgggc	gatgtcggac	gctatcgtac	aataagaaac	60
tcaatttgaa	tattgatcct	gatatcaaag	tgcttgacaa	tgaagatatt	attgagatca	120
tcaagtatct	tattgagtta	gtaaattcaa	ggcatcagta	gatgatatag	accacttgct	180
gaaccgtcgt	gttcggctgt	cggagagcag	ctttacaacc	aatttggtat	tggtttggcc	240
cgtatgccag	gacagtacgc	gatcgaatga	atgttcgcga	taatgaagtt	ttcaacctat	300
cgatttggtc	aatgctaaga	ctatttcctc	cgttgtgaat	tcttcttttg	caccaatgcc	360
ttgtcgcagt	tcattggatca	gacaaaccca	ttgctgaaat	aacgcataag	cgacgtctgt	420
cggcattggg	ccccggaggt	catcgcgcca	acgggccggc	tttgaagtgc	gagacgttca	480
ctacacgcac	acggtcgtct	atgccctatt	gaaacacctg	aaggacctaa	tatcgggtcta	540
tctcctccct	ctgcgtatac	gccaaaatca	gtgattttgg	ttttattaaa	caccataccg	600
ggaagttaaag	aacggcaaag	tagattttctc	cgacaatgac	tgaaatacta	cacggcgaaa	660

gaagaggaag agaagaccgt agcacagga aatgcgcctc ttgacgaaaa tggtcgattt 720
gt 722

(2) INFORMATION FOR SEQ ID NO:1094

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3802 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...3802

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1094

acgttgagca	cogtgtcctg	ttcttcgcag	gcttcatacg	gtttcgcgcg	gcgtttgtat	60
acattctcca	cgtcccgatg	gcacgtccca	ccagcgacga	tggcgatagc	catacctccg	120
agactcatcg	tattgatggg	cagtcctcca	gtttgagtg	caaaaaggat	gcaaccagcg	180
aaaggggaat	gggtgacagc	aaatgattcg	tggcacgagc	attcatcagg	aaaatgaata	240
atacgtgacg	acggaatatg	cctccttcgt	acagagcttt	tcgtacgttg	ctgaagaatt	300
ttcgaatgaa	cgctcttgac	ggaatatgtc	tgtactcact	ttccatcgga	ggggagagcc	360
ttttgcagat	cggccagaga	gcgatccaac	cttcgggtcag	ctccagtgtg	ctcgtcgcgc	420
gctgtttggg	gatgggtcag	atacggcaga	ttgtcctcgc	tcggaagcaa	ggcccaactt	480
cgggtgcctta	tgcccaccct	tacctctgcc	acgctttcga	gcatgatggg	aatatcatca	540
gactttttac	cagtgtctta	cccaatgcgg	cagcatcggt	cgtggagaga	gtccgcaaat	600
gatataatcg	ttgccgtatt	catacagtag	gccacccatg	cattgcgggt	catttggtcg	660
acggcagcac	gtacttcggc	cagcgtatac	cgtagtgtct	catcctttcg	ggattgagca	720
gtatctgata	ttcctgatgt	cgcttcggag	tactgtcacc	tgtgccacac	ctccgatcga	780
gagcagcgcg	gacggatcgt	ccagtcggcc	aaagtagcga	ggctctggag	agagtgcgtg	840
cggccgtaag	tccgataatc	atgacttcgc	cgaggatgga	ggttgggggc	cgagcgtagg	900
tttgcccaaca	ttgtccggca	gatcggcacc	gccacggcca	gcttttccga	cacgatctga	960
cgagcacgat	aaatatccgt	ccccagtcga	attccaccca	aacgatagag	aagcccgtag	1020
tggaagacgg	cgcacgcgac	gcacgtcggt	agctccattg	acggccgtct	cgacggggag	1080
gttacgagcg	gttccacttc	ctcgggtgcc	ataccggtag	cctccgtatc	actacgacgg	1140
taggagcggt	aagtcaggag	aatacgtcca	cctccaattg	gaggccgtat	aggtgccgac	1200
cagcatcagc	agtagcgatg	ctaccatatt	gtcagccggt	tggtcagaga	gaaccgcatg	1260
atcttgttca	gcataatcga	tatctctctc	ctttagttag	tatgaccttc	aggcattacg	1320
gacaagtagc	ggccagtttc	acctgatata	ctccatgagt	cacaacattg	tcccggcttt	1380
cagtccggac	aggattcgca	cacgacgtcc	gttgcctctg	cgagggtaac	ctcttggttc	1440
tgatactcct	cttcggccaa	ccgcagatag	cgaagtgcga	tccctgctct	tcggtaattg	1500
ccgatacggg	aacggagaga	cttcttcctg	agtattggag	agcagatata	cagtgcgaa	1560
agagccggta	cgacatcgcc	cacattgtcg	aattcgaatg	taacggggat	gtaggatact	1620
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aaaccaagag	gatgatccct	tcacgatcct	gctctcctgt	gtacggaaaa	aggcacgaat	2640
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cttcttatat	aagtgttttt	ttgaccgatt	tccgtcctaa	tcgcgaactt	gtctgaacgt	3480
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gcctgacccc	aataggcccg	taatgagccc	atgaggacat	cgccgcttcc	tctgtcgc	3660
atgccggggg	tgccctattg	ttgaatacga	ccatgccgcc	gggcatacag	gttgccactga	3720
atgccctttc	aggactacat	agacatgatg	atgacaggcg	aggaatcggg	cttgccgcagc	3780
cgttcatagt	cgtattgca	at				3802

(2) INFORMATION FOR SEQ ID NO:1095

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 659 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...659

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1095

gaccgctcct	tcgaagccct	cggacagggc	aacctcgagc	tggccgagca	gcactccgctc	60
aggccatcaa	agcctatccc	gacttgccct	ccggctatcc	ctgatgaaca	acctcgggtgc	120
catccagcag	agacagggca	agccggagaa	gcgctgctca	cctacagcgc	agccctgcaa	180
aagctccctg	acgacagctc	ctgcgcacga	acagagccat	gctcctgacc	gaaatgggac	240
gaacgacgaa	gccatattcg	actacaacga	actactcagg	gcagagccgg	acaagagatc	300
ttccactacg	gcagagccat	gctctatctg	gccaaaggaa	tgctcggcgat	gccgagtcgg	360
atctggaaga	aatcctccgc	gtcaatgact	cccgtctcaa	gcccgtctcg	gcctcgccct	420
ggtggcaacg	atgaaaaggc	atacgacaaa	gccgaacggc	tctacaacta	cgtgatagac	480
aaactcccga	aaacgccgca	gcctacgaag	ggcgcgcccg	cctcttctcg	aacaagggat	540
gaaaggctac	gccctgcgcg	acatcaacaa	agccttcgaa	tacgccaccc	gcctgccgcc	600
tccctcttcg	tgctgcgagg	cgagatcaac	gccgccaagg	cgacaaggaa	agccggcgg	659

(2) INFORMATION FOR SEQ ID NO:1096

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 791 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc feature
 - (B) LOCATION 1...791
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1096

```

ctctagagga tccccaactt ttttcagtac acgtcagggg ttatttcttta tcttgaattt      60
tgctcaaadc tcatgagaaa acagatgaaa ttcgcttccc attttccttt tttacccttc      120
cgagtgtcaa ctttttttcag tacacgtatc tttaatgcgg taaaatctgt cacttcgata      180
aattacgagc cgaaaagctc ggattgtggg ctgtaaatcc tgagaaaacg gggcgagaat      240
tttttgcttt ggcgcgtaaa aattttacct cccgagccaa aacgcaaaaa attagcgcca      300
cgctttcatg gctgtaaagc cggcaatttt tggagcctga acctcgtagc gggggagggg      360
gtagcgatgt gtactttcgt ggacttccga gtcagggtca ggctctatat tgagccgggt      420
gtcccgggtg atcagggtatt gttgtcttag ggtgaaaacg ccgattgcag ggcattaagt      480
cgccggctct agctgtcggc aacctatagc gaccgatgga aacctctctc cgaagtactc      540
ttgcagagta atgaataact ctctaaagcc ggctttcgac aggttttctc gcacctgagt      600
ggactatact cgtatattaga gaccattgca caaagagctg ttctttctgc tagcttggtc      660
ccggtgtgtt tttgaccatt ctcgtcgttt tgcagcctgg ggactaatat tcaagggtgaa      720
gaacacatct aaatgtcaaa aacacaagga aacttggtcg gtattggtga gctggatttg      780
tgcattgtct c                                     791

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(2) INFORMATION FOR SEQ ID NO:1097

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 323 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc feature
 - (B) LOCATION 1...323
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1097

```

ggaaacaaaa cttaaagcat ctttgntac atcttccttt ttgactatag taaatctnca      60
atttgaacat tccctccgag gaacttttga taatctctna gtaagggaca tgtacaataa      120
catacttgag caattcccaa aacagatctc tngntgctct cgtgatgata ctacatgtgc      180
ttncctataa gttttttata ggcaggcatc catttaactg cttttntaag ccagtattnt      240
agacgtagga ggcattatta agcataaaca tacttntaac gntcttatng tttaccatga      300
aaganttatt ctnacttaa aaa                                     323

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(2) INFORMATION FOR SEQ ID NO:1098

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 642 base pairs
 - (B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: UNKNOWN
(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...642
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1098

cgatcaatggc	agggtggcat	ctacctatcg	cgaagaaggc	gacgagtaca	tattcgcggtg	60
cgcttggccc	ctgagttcag	gcatcattg	agggaactga	aaatatcctc	atttatacgc	120
ctcagggcaa	agggtgttcgt	ctgggaggct	gggtaaaata	gaagagctgt	acactcctcc	180
caccattgaa	cgaaagatcg	tcagcgtgtc	gttatcgtag	ctccacggc	tgtcaaagga	240
gctgcttgag	cgatttggtc	gaagtggcca	aagaaaagat	tgctcaactg	gagatcccga	300
cgggattgac	tacaaaatca	gtggtacata	cgaggaccag	cagagacatt	tgcagacttg	360
agcaccctta	tgtgctgat	cgtgatactc	gttttatcgt	catggcagca	cagttcgaga	420
gtctcgctga	tccgtttgtg	acatgttttc	cataccgttt	gctttcacaa	ggtgtcatag	480
tcggtcttat	attacccaat	taccactttc	agcgcctatgt	cctttatcgg	tctgattatc	540
tgatgggtat	cgtgggtgaa	agaaccggta	ttgtgctcat	cgatttacct	cgtctgtgtc	600
gcgaacgccg	tatgggcatt	ctctctggcc	gtagtacagc	cg		642

(2) INFORMATION FOR SEQ ID NO:1099

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 512 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
(ii) MOLECULE TYPE: DNA (genomic)
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: UNKNOWN
(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...512

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1099

cttcagctgt	ttcgctcaca	gctacaacga	tttccgtata	gatgcggagg	tctttgtaac	60
agggttatac	tggagcggag	caaagtttac	tacctgacac	gtacatcgcg	caggatgaaa	120
ggatcgctca	gcgtagcgat	ttcgcccga	agaacttgct	ttcattatag	ctctgtccgt	180
acacgtaggg	gatttgtcag	gattttcagc	gcgagagata	acacctttag	agggagcgat	240
cagcaatcct	tcttttcgat	gaatttggaa	gaaactacct	ctaccttcat	cgcagtgttt	300
cagaaacggc	aagagaacgg	gaaagaatgg	gcaatatagg	cgtcctttct	ccgagatatt	360
gacaccttcc	gtgaaggtag	gcacctgaac	taccctttgg	aagtctgttc	gcctgtgaac	420
tgaagattgt	ccatacggaa	tgcaccttgg	acatagactg	ctcagcggag	agcagtcgta	480
cttgtgggtt	cgaacgcgct	ctgccggctg	tg			512

(2) INFORMATION FOR SEQ ID NO:1100

- (i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 724 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...724

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1100

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ccccgggtgc ggcacaagca tttctctgcc aagtctacct cggccaagcg cgcctacgag      60
agcaagacca agacttgctg agaagcttg cacaactttg gcagagaatg aagactttgc      120
acctgaagat gctctacagc tcgcggctgg aatccctatg accagaatgc cgtcagctca      180
ttcttcgacc ctgaatgatg tttggcctcg cagatggctt cgacatcgtg attggcaatc      240
ccccgatgta caactacaga ataatggggg agaattaacc aagctctatc aaggtgtgac      300
ttcaagactt ttgctcgtac tggagatgta tattgcctat tctcgagcga ggctggcaac      360
tactcaaaga gggagggcac ctctgctaca tccctccaac aaatggatgc gtgcagggta      420
tggagaaaag acaaggctat tttcgctccc aagactaacc ccaagctact tgtagacttc      480
gctggagtta ggtctttgag agtgctacgg tcgataccaa catcctactc ttcgccaaga      540
ggccaacgca ggacagactc aagcgggtct cctgaataag aatgtccaat tggcggtagt      600
gaattgtgcg aatatattca acagcatgca acagccttgc tttcatctcc tccgagagct      660
gggtcatcct atccctatc gagcaggtat caagcgaaaa atagaagccg tcggcaaacc      720
tctc                                         724

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(2) INFORMATION FOR SEQ ID NO:1101

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 5069 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...5069

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1101

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aagggaatac ctaatcatta cttcacacca tagtgcaaac ttcgtagtac nctttcacnt      60
tttcgacctg attgctnngg atgattatct tcccgctctg gctgctcctc ccactccgca      120
tcgctgcttg agcaggcgcg acagatcgct agatcgctcg cggaaccgac gtgtccgctc      180
acaaggggtga cctcttgccc cgacgctgct tccgatccag cgtgatacgc agacgttggt      240
tctccgagga agcgtctcag ctacctcttc gctatcttca tgttcgtatt ggaatcgggga      300
ttcgtagtgt acatgacccc cagtctgttc ttccagtcac tcaattttat attctccata      360
aataaaaagct gccgaggaga taccacaacc tcacgacagc ctttggtcct aatcaaatac      420
cgcgcgctct agtgcggtat attcttttgg gccgacttgg taatgcgctt gcgcggctca      480
ggcatggctc gacacgaacg atatgctcat tcgcaccctc ccacatgata tccttttcac      540
tgtgcgcaga taagctatct catcgccctt tttcaccaca gtgccttggc tactacctcc      600

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gtaatacggc	cgggtgaatgt	accaatagac	tttctcgtat	agccaaattg	gttttcgatg	660
tagcagaaag	gctggccggg	acgatatcgg	caccgatagc	cggagcgatg	gattgctctt	720
ccgtatcgat	ttcccataga	gtcgtccgga	gcaggggtgc	acgatcggat	cacatccggc	780
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cgtgtgatgt	ccacgccctg	tgctttcttc	accttgatca	cagccggcgc	acatcagccg	1980
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ttcacctctc	gaatgcacct	ccgttcgttt	ccactcgcgc	aaagcaaccc	atctcccaat	2160
aacgggagct	atgcgttcca	attgatcttt	tcgtggttgg	tacttctctg	cgactgccac	2220
atgtcgcggt	acatcagact	gaatttgatt	tcctcttcct	attgttttca	agcgatttctg	2280
tgttgtgtac	ttgacttctt	ccttatataa	ataccgactg	tgatatgcta	aaccacaaaa	2340
gcaaagggtat	caataattcc	atagttaatc	cggccgaaat	gaatttttcc	acacccctgt	2400
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gaattgccga	gcctaaatct	caaaaactcg	aaccacaagg	aaaatcttta	cgcgcgagat	2640
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gaccaagaaa	gaactcggat	tcagaactcc	gttcgagtgc	ttcttgctaa	aattataaaa	2940
tacaattgtg	ttgcacatat	ttgtgggatg	tgacgcgaag	gcaagttatt	gctccatagt	3000
aaaaaaagat	tacctttgca	gctgttacgg	atggatgggg	aggcgacccg	atcaaggttc	3060
ctcttttttg	tttatcccaa	tgtccaaaag	tacagagcga	gatgatagac	agagaacaaa	3120
tcgttcggat	cgtttcgaat	atttgtccac	cggggagact	ttctcgttgg	aggtggcgat	3180
acatcgggca	acaggatcct	cgtagagctg	gatagcgccc	aaggagtttg	cataatgagt	3240
gcgtagcact	gagccggcac	atcgaatccc	aagtggatcg	ggaatagaag	actacgaact	3300
ggaagtaggc	tcgacccggc	tgacgtctcc	tcgaaagtga	tgcgccagtg	ggagaactgc	3360
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ctgtcgtccc	gaagctatca	agctgggaagt	ggtacgcata	gtgaagccgg	aaggagccag	3480
cgcaaaaagc	ctgaaaactca	agagttgaca	atagtcattg	ccgacatcaa	caggccgtgc	3540
gtatcatata	agcaatagta	aaaaagaatc	aagagaaaca	ccataaagag	agtcctatgg	3600
ccaagaagca	agagacgatc	agcatgtaga	atcgctggca	gaattcaaaag	agctgaaaaa	3660
cattgacaaa	gagacatgat	caacgtcctg	gaggattcct	tccggaacgt	tctggcaaaa	3720
atctcggatc	ggacgcacaac	ttcgacgtaa	tcataaatcc	ggagaaaggc	gactcgaaat	3780
atggcgacc	cgtcaggtag	tagaggacgg	tgccgtagag	gagaaagtctg	cgaagtgtct	3840
ctgtcggatg	ctcacgagat	cgaccccgag	gggaggtcgg	tgaggaaagta	acggactccg	3900
tgaacttcgc	ttcattcggg	gccgtgccat	tctcaatctt	cgccaagctc	tctccagcaa	3960
gattatggac	ttcagaagga	aaacctgttc	aatacattca	cggaacgtat	cgggcagcca	4020
tttcggctga	agtatatcag	gtatggaagc	gtgaggtctt	gcttatcacg	acgacggcaa	4080
cgaactcctg	atgccgaaga	gcgagcagat	cccaaggact	ttttccgcaa	aggtgagacc	4140
gttacaagcg	ttgtggagcg	cgtgggaacg	ccaacaacaa	tcccaagatc	atcgatatcg	4200
gttacaagcg	agagtcctca	agaggctttt	cgagctgaat	gtaccggaga	ttgccgatgg	4260
cctatcacca	tcctgtgcgt	agcccgatc	ccgggagaga	gggccaagat	ggcgtagagt	4320
cttacgacga	tcgtatcgac	cccgtaggag	cctgtgtggg	ttgaacggtt	cgcgcatacg	4380
aggtatcgtg	cgcgaaactga	gaggcgagaa	atcgacgtta	cgagtagcac	gacgaacacc	4440
gccctcttca	tccagcggga	ctcagccctg	cacgtatatc	ttcgattcgc	ctgctcgaag	4500
cagagcatag	gccgaagtat	tcctgcgccc	cgaagaagtg	cctttggcca	tcggaaaaat	4560
gctcgaata	tcaagctggc	atcggggctg	acgggttatc	agatcgagtg	ttccgtgaca	4620
tagacgatat	ggacgaagaa	gacatctatc	tggacaattc	aacgacgaga	tcgaccagtg	4680

gatcatcgac	ctgttcaaga	atatggttgc	aatacggcca	agagcgtgct	cagcaagaac	4740
agagaagatc	tgacaaagag	acggatttgg	aagactccac	catagactat	gtactcggag	4800
tctgagtgcc	gaatttgccg	atgaggatca	ggtgactgat	aatcaaagta	cgattcggat	4860
gatttggaca	atttctctgc	cgaagacgat	ctgaagcaag	gtaataagaa	gaacaaaagc	4920
agtctcctcc	ccatccctca	tcttatagtc	aatcctcaca	aagggtgcagc	ataaatcaca	4980
gaagaagaaa	aggtttagttg	tcaatnaaan	aattcagctt	agctaaagag	ttaaattgtag	5040
gagtaggtcc	ctcgccggct	ttcttcgga				5069

(2) INFORMATION FOR SEQ ID NO:1102

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 424 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...424

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1102

ccagacagca	tttcgatcag	ctcattgtcg	atcttcgatg	ccggcagtag	atcgatcatct	60
ttttgatcaa	tgtatcggcc	acttgaggta	gcagttcggt	gaggtcacga	ccaattccat	120
ttcacctct	ttccacttat	gaggctgacg	gatgcgcgaa	tgaggagata	cagccctcc	180
ttgcaataat	tgccgagttt	acatgagcct	gtccgaaaag	aggtatttcg	cccgtgccgg	240
acagacctct	aacgtaatat	ttgagtacgg	attattcgag	cgagagattc	cctgaaagcc	300
ttggtaacaa	taccggccaa	aaccaaattt	ttcccgacca	aggatcggat	cgggtcaaatac	360
ggctgcatgg	gtattgcaat	agtggatcga	gatgacttgg	tactgagcct	ttggattgga	420
acta						424

(2) INFORMATION FOR SEQ ID NO:1103

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 662 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...662

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1103

ttccgctaaa	agattctatc	aaggaaagag	ccttgtaatg	ataatccgag	cttctgcaa	60
agcaccgata	cgacggctat	ccgttccgag	atgattcctg	cttgtgcggc	tacgatggg	120
tcccttagat	tcaatgcagc	gttcaacctt	tttggtgata	tagcatcgca	tctgtgtatt	180

gggacatatt	acgcatcggt	tgccgacctc	gatcgcggaat	aacatttgtc	ccacaagggt	240
cttgtctgta	cgctgttctc	gtaaagctgt	ttaacagaat	cagtggggag	ttcttttcgt	300
acagcaatgc	agtaatacgc	tttttctctc	gggcgatttc	agtacagagt	gtttttcttt	360
ttttccacat	ccgacccaaa	tcgacaatat	gataataata	atgggaaaag	tttcttcatt	420
tggctttcta	tatgcaagtc	attccggtgt	aaaactaatc	aaacatggat	aatctgacac	480
ataaatatgg	ttgtgaaaca	atattgagag	gagtgcgaag	cgtccatttg	aattatttct	540
atatttgcgg	agtcggtgcc	ggtaaaaaag	atgaataaac	tttttcttgt	cttcggcata	600
aagacaaact	aaaaaagaaa	acagagaata	gaagtaggga	agctcatggc	tttcgtcact	660
tc						662

(2) INFORMATION FOR SEQ ID NO:1104

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 690 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...690

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1104

ggccggctct	gtctgtttgg	cgatggccgg	cataccgcac	aggatgagga	tgccaatgat	60
aatagcgatt	tggtcatacg	ttggtcgggt	atcgaatcaa	tgagtgagat	gaggacaaaa	120
gagccaatgg	gcgaatatgc	cggcgacagt	ccgccgatcg	catgtgctcc	gatcgctgt	180
gtgatgaggg	ggcggctctt	agactgtcga	gcattggcgt	gtgcgtactg	aggaagccgc	240
tccagacata	cccatggcgg	tgaaaacggc	tactgcattg	ccgtccagga	tacctgcgcc	300
gagaagttgg	gtaccagtc	gagggctgca	ccgactgctc	cgacgcgggt	atcggaaggg	360
cgatgagggc	ggaatcggtg	aagccgaaga	gcagcggaag	aggaagtcca	ccttgtcggc	420
aagggccggc	agcaggccga	cccttcgtat	gccttgccgg	cgaagggtgc	gtcgggtccg	480
gcaggtcggt	ggtgagcatc	ataacggccg	tactgatgat	gagtacgccg	gggatgatgc	540
gataccgagg	tctacacccg	tcttgccgcc	gtccagtacg	gcattgagat	acgcaggaaa	600
aggttctct	tatgtctctt	cgtttcctcg	tgctgcactc	ctccacattg	accggactgt	660
ccatttcgcg	atagcggcgg	agcgtgtccg				690

(2) INFORMATION FOR SEQ ID NO:1105

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 525 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...525

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1105

cggattttcc	ggaattgctg	tcagaagtcg	agacgatagt	ctactccgga	ctcgaatcaa	60
tatcgactac	ttcatcaacg	aggatcatgga	cgaggatctt	tggaagatat	attcgagtat	120
ttcaaagaat	ccacgacaga	ctctttgagg	aggctatgca	agaactcggg	aaggactatt	180
cggaggaaga	gattcggttg	tacggatcaa	gttcttatcc	gaaatggcaa	actaatgcat	240
cagttatgat	gctataatac	ggtacgaaag	atgaaaaaga	atggaatgcg	catcgcataa	300
tcatgttgct	gttgctctac	tgggcactcc	cctcaatggg	acaaagaacc	gtggatcgac	360
gaagtcgtat	ggatggtggg	gagacgaacc	gatctgcgct	cagacataga	ggctaccaaa	420
acgttttttg	ctcagttcgg	gcgccctctt	gaggggaatgc	agactgctat	attcctgagc	480
agattgccgt	caaaagcttt	ttctcaatca	agccaagatg	gacag		525

(2) INFORMATION FOR SEQ ID NO:1106

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 510 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...510

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1106

atgccattcg	ggcgatgtaa	tatgggagaa	ctggtctttg	ccacagaggc	ttgcgcaagg	60
caatggaact	acgtcccgag	tttgagaccc	gttattattg	actgaagcat	tgcttcgacg	120
ccatctcacg	gaagaagcgt	tggctcaatg	aatttactcc	ttgaggaagt	tccgatgcat	180
acagcaaccc	tgctcacctg	gctaagttga	ggttagaaca	aaatgatccg	tcccagacac	240
ttgagactgt	ggtaccggta	tcgaatctac	atccgaattg	gaggaacaag	ctctttcctc	300
tattacggag	cctccgccat	gaaggacatg	aaaaacctca	agaatgccct	ttgcctgctc	360
aaacaggcca	tcgaaaaaaa	atgatgcctt	catccggcca	gactccttcg	agcgcgcata	420
ctcattgact	tggagcgcta	taagaagcca	cccaggattt	ggattgggtg	gcagcattcc	480
gatccggaag	ggaacagggtg	cctatgctcc				510

(2) INFORMATION FOR SEQ ID NO:1107

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2156 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2156

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1107

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atcatagttg atgacgaaga gtccatatcc atccacgcag ggaacttggt cgaaaacgct      60
gcatcgcccc cttatcgagc gtatggtaca gcacctttcc tctccttcgg cacaagtggc      120
aagatactcg ccccgaggcg aaaggatgcc gaatcgcccc tatagcgag accgataccg      180
tcctccccc cccgatgatg ccgcacacat aggcatagtt ctccatggca cgagcttggg      240
gtagctttgc cagacggcgc gacgcggctc aggccagttg gccatgcaga cgagagatcg      300
tattccagat ccgtattggt acaccagacg ggaaaaacgca gatatagcag ggaatgatga      360
agatcttcca accgcgatag ttgaagatcc ggggttctgt gccggagtca tcacctcatg      420
ctctccccct acacggaaga gtgcctcttg tctgatgga agacctctcc ttcgggtgtc      480
acgaaatagg acgattatag aatttcccgt tctcccgtac ggccatcgta gccgacagac      540
caaaccatga cgagcagtc ctctcttcag gctcatgata gtttcgcctc ttcgaaaggc      600
tcgcgcagag cttgtacggt catcgaaaag cccgtagcat catttcggga aagaagagga      660
catccgcat accggtggt tcttcgcaa acgctccatt cggcgtagat tggcgtgctt      720
atcctcccag tctatcggca ttgagctaca ggaactctca atggctgaga gctctcgtgt      780
ttgacatatt tctgattctg caaagtttctg ggggtgcccgt gcctgtgatg cccgtaccga      840
cttctgatgt aggcaatct cgcttcttca ttgccgtag ggtgaacagc tcgaatacgc      900
tcatttcttt atagctatag tcgatcacag cagctgaata ggcaactccg ctcctacggc      960
gatgcgatag aatcccgttt ccaactgagga gaatagtccc ttgtaccctc cggggtgata      1020
gcaacattga aacagcatgc cgctgaaaaa attcgcgtag ttgttcgaca gtggaacccg      1080
cttcgagcga tcgatcggga tacctcccat agccctgaag atcgggtccaa agggaagaaa      1140
aaccattcct ttttcatcag gaagccggct ttccgacgat agaccaatag tagagtttgc      1200
ccagcaaaaa gtcgtaattg ctgggtgagg agccacgcaa atgacgcttt ggagcggatt      1260
tgcatagggg acgaggcttt ccagcccatc atcctgagca acaatcgtga gaaaaacttc      1320
aaacacctct atatgttacg ctatttctgc ttaatgcacg taagtgcaca ataattatca      1380
gacgcacacg ccgaaatact cttcacgatc tcggacagct ctcttgaaa tcatccacga      1440
gccggcgata atatttcttt acgagtgcag attgtgctta ccgtcgttgc aacgaatctt      1500
ggcaatggtg gtatcttgag ttggagaata cgattgagga tagtttccac ctctgcgttt      1560
ttttcctctt caaaaagagt ttgagcagga atgcatacgt aaagacttctg gaaatgggtc      1620
ggttatctgc tttttcagtt ttctttcgtc tgccatgctg tcaatatatt gaatgtgtat      1680
gcaagaaaca atatcaatac aaacttacgg aaaaatcaaa gcctatcccc gtacatcgta      1740
ccaaatagaa caccttatgt agcaacagca aagctctctt atttccatgt cgagcaacgg      1800
ccatccccctg ccctcttatg agcaatcgac aggacagaca caaatgacac acatagttca      1860
tcagctctct ggaagtcgca ggaattggct acatttgcaa aaacacaaac gcttcaacga      1920
agctaaaatat ctctatccta acacttatca tccgaattaa aacggcttaa taatgaacgc      1980
gtatatcatc ccatttatgc tccttaccct cactctccta ttatctttgt cttatctacc      2040
gtatgccaat ccggtttcga caaaagagca ttttctccta tgatgaatag tccgaaataa      2100
ggttccttac tcattccaaa agacaaggca cccgcgaggt tcgctatgca actcga      2156

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(2) INFORMATION FOR SEQ ID NO:1108

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 529 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...529

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1108

```

cgagcctctg cctgcctcta ttctggcttt gcccgacaaa cgcggcgtga agacaaagta      60
attaccttcc tgggacgaat cacgatgcag aaaggcccgga atacttcgtc gaagcagcgg      120
ccaaagtact cgaacgcaca tccgacgacg cttcgtaatg gccggaaacg gcgacatgat      180
ggacgccatg atcaggtggc tgcccgcacac aagatagccg accgcttcca cttcacagga      240

```

tttataaagg	cgaacaggtg	tacgaggtat	ttaaggcaag	cgatgtctat	gtgagccatc	300
cgtatccgag	ccattcggca	tctctccact	cgaagccatg	caagcggagt	cccctccatt	360
atttccaaac	agagcggatg	tgccgagatt	ctgattacgc	catcaaagtg	gactattggg	420
acatcgatgc	catggcagac	gcatgcatgc	gcttatagct	tatccggaac	tgcatacttt	480
cttgcgggac	agggtctccg	agaggtgaac	aacatcaagt	gggagactg		529

(2) INFORMATION FOR SEQ ID NO:1109

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 608 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...608

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1109

tctanaggat	ccccgggatc	attccgcaag	gggatgggca	aacactatcc	tgagtgtctca	60
gaccaatgga	aagtactatc	agcagtatag	tgtcacatta	tggatccatg	gtttgggggc	120
aagcggcccg	gatatgttca	gcttcaggca	ttctattcca	agactacggc	gattgactcc	180
aagttctaca	atagcatgcc	ggcaactact	ataatgccta	ctataatagc	tactacaaca	240
actatatagt	tattacaacg	gtatgtcgaa	ctataccggc	gacctctata	ctcagccagc	300
gatccccgat	cgttcgcttc	agatgttagg	tacttcgatc	ggtacggtaa	agcgtttgac	360
ttggccggac	aattgggttc	agattttatac	tttctgaact	acacctacta	tagactgcga	420
aattggagct	acaatacctt	caaaatttcc	atcatggctc	gctaattgatc	tcaacttgga	480
gcctgcgtct	tctcgtactt	ccatcgataa	tcttatttat	accagagccg	gatcggatta	540
tggttttctg	gtgctgctac	tcttccttat	tctttgtggg	acaatcatac	tatgccagcc	600
agaacttc						608

(2) INFORMATION FOR SEQ ID NO:1110

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 620 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...620

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1110

ctccttccag	tcttgatctt	tgatgaaacc	cagacgctca	agctgtttgg	gtaataagcg	60
tagttataaa	tggtagccat	cgtacccagc	tggtcgaacc	ttcgataagc	atcccttcgt	120

ggtccatata	ggtgaaaccc	attggccttg	cagcatatcc	atccccttgg	agcgtgcccc	180
tccggatacg	gcatggaaag	ggcatctacg	acttcattgt	cgttgatgaa	atcgacgaac	240
ccgaacgagc	gttgttctga	ttccaagttt	cattggcacg	gtgattgatc	atacggcgat	300
gcgtcccaag	atccgccctt	cacgataagc	caagaaatag	atgcttcgca	gaactcaaaa	360
gccggattgc	ggctctttgtc	caaggctatc	attcatcatc	gatcagcccc	ggcacatggt	420
agggattatt	tctatagaga	ttatatggaa	ctgaacgaat	ttcttcagct	cggctttgtc	480
caatacttct	ttattttctac	agccataaaa	ctcgtattta	gtttacctaa	gtagtcaaag	540
ttacaccgga	ttttggacct	ttcacgcaca	aatataactg	aaatagttat	cattttattgg	600
ataaaatctg	catctactgg					620

(2) INFORMATION FOR SEQ ID NO:1111

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 813 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...813

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1111

ggttcaaact	ggccaatatg	tacgtacagg	ccggagagat	agacaaggca	tatacatata	60
caaccgtatg	gaggcacaaa	atgctgtcaa	tgcagcagtg	cctccaacta	tgctgagatt	120
cgggcacgtc	tctacctgat	gaccggtaga	ccaacaaggc	tctgaacgaa	cttcgccgtc	180
tatgcaatcg	attcccgaag	tgaatgagtt	taggctgaag	tatgccggca	ctctgctcga	240
cagtggaaagt	acgacgaagc	ctacgagcaa	ctgcaactga	tagctcggac	ggatcgacaa	300
gtggcttgta	tcattttgct	atggccagct	attacttggg	aacaacgaaa	aagaagctgc	360
catcaacgaa	atgatcaaag	tagccgctga	caggatgtgg	caccggagca	gaaactaccg	420
atcatcctgc	gctttatcgg	tccgacacag	acgaagagga	tgcaccgaaa	aaagagtata	480
atatacctgct	gaaaagatac	ttgccagcca	tcccactgag	gtggatgcac	gccttttctt	540
gccgagctct	tggaaatgca	gggtgattct	atccatgcca	tggagggttg	cgacctatca	600
cggagtttgc	tcctaaagaa	gaacgggcat	ggaaattatg	ctgggaagag	ctgttaccgg	660
ccagaaccat	accgaagtcc	atcgcaatcc	gaacaagcgc	gacaatattt	gccgggtgtg	720
ccgctatttt	acctcacgat	gccatttcct	attatataga	gaaaaaaggt	tcagaagcca	780
agcaatactg	caagaagcat	tggagcatat	cga			813

(2) INFORMATION FOR SEQ ID NO:1112

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 401 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...401

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1112

cccagcatga agaccataat cttggccatg ctggcgcgta tcgatcgcag agcatatcgc	60
ctgccgagac gaggttggttc aggcctcagga tacggaagtc ctcagcagtc gaaggatgcg	120
gaagaccatc agcacctgtg ctccgcttag acaagggcta tataggaggg aagtatggag	180
atgaggtcta tgatgcgtaa aaggaaagga tgtaccgcca cggtttatga aggcagtaga	240
tccgcggatg tattcgatgg tgaatacaat ggtgataacc cactcgcacc aatgaaaaaa	300
ttccctcgtg ctatgggaca ggccttacgg tactttctgc tgaacgacaa tgacgtcaa	360
gaaaggatga ggcatagcag gagaatttcg aaaagcggttc c	401

(2) INFORMATION FOR SEQ ID NO:1113

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 789 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...789

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1113

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catacagatg aagcattcaa tcaatcgaaa aaaactactt tcgcggagta attgccttac	240
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gccatagatg gaaggagtcc atgaaagtag ccctgctcac ggatattcat attagcgaag	780
cggtacggc	789

(2) INFORMATION FOR SEQ ID NO:1114

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 18062 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...18062

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1114

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(2) INFORMATION FOR SEQ ID NO:1115

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2092 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2092

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1115

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(2) INFORMATION FOR SEQ ID NO:1116

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 7530 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...7530

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1116

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(2) INFORMATION FOR SEQ ID NO:1117

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4506 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...4506

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1117

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(2) INFORMATION FOR SEQ ID NO:1118

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 403 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...403

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1118

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(2) INFORMATION FOR SEQ ID NO:1119

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3642 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3642

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1119

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(2) INFORMATION FOR SEQ ID NO:1120

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 3150 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

- (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...3150
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1120

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(2) INFORMATION FOR SEQ ID NO:1121

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 6442 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...6442

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1121

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ttgtgccgtt	tcttctccac	cgacaacttc	cgacaacgac	ccgttcacac	tctcgaaaag	4860
gaagcgcaga	atccccattt	ttggggagaa	ttaatgtgtt	ttgggctact	ttgttagtcg	4920
ggttagcaag	atttgtgtat	ttttgccgct	cattagagtt	gtttgcctta	gacaatcaaa	4980
caaaaagaca	accacattgc	ctaactattt	aaaatgggcg	agattatcag	tcatagcgga	5040
gtgttcaccg	agtgcgaagc	gacaagataa	cggtagtgtt	gcagcagaaa	agtgcagcgc	5100
cgtttgtcat	gcgcgcggct	attgctcctc	tacagactgc	aaagacgata	tatcaccgta	5160
atgggaccgc	cacctgacat	ccgcgaagg	gatcggtttt	gctggaagg	catagtgcc	5220
tgggacgtct	tgctgtcatc	ctcctttcat	tgtccctttg	attttgttgc	tgcttatgct	5280
tgctctcacc	atagtattct	gaggttggac	gagggcatga	gtacgcttat	ttctttggga	5340
gtttgggagt	atactacctg	attctccggt	tattcaacgg	caaactgagc	gacgtttggt	5400
atttactatt	cgaaaaaata	atcagtaaca	aacaaatata	tacttactac	tgtgattggt	5460
ttggccgcaa	tcggtgccat	cgggtgcacg	ttttgttttt	ggccgcaaag	aagttcgagg	5520
tcaaggaaga	cccacgctcg	gactgggttg	agaggctact	cctcaagcca	actgtggggg	5580
atgtggttcc	ccggtgtctc	cggttttgccc	aatgcctgcg	tcaaagccga	aagcccgaag	5640
gactgctctg	tcccgtaggg	ggagcagcgg	tgatggggca	gataccgaca	tcctcggcat	5700
ggccgcggcc	gctcaggatc	cgaagattgc	cgtgttcggt	gcaatggcaa	ttgcgatgcc	5760
cgtccgcgta	cgaacctgta	cgcggagcct	ccagctgtgc	agtagccgct	tcgctatata	5820
gcggagacac	ggctgtagct	tcggctgtct	gggattgggc	gattgtgtgg	atgcctgcgg	5880
ttcgtatgcta	tcgcgatcaa	cccgcacaac	ttgtgcgcgg	aagtgggtgg	gatgtttgta	5940
cggcatgtgg	tgcttgtgtc	aaggcctgtc	ccaaatcgtc	atcgaaactcc	ggaagaaaag	6000
gcctaagagc	cgccgtatct	ttgttagtgc	gtgaacaagg	acaaaggcgg	tgctcgccaag	6060
aaagcttgta	gcaatgttgt	atcggctgct	cgtctctgct	gaagcaatgc	caattcgagg	6120
ctatcccatc	gagaacaacc	tctcgtacat	agaccacacc	aagtgtcgca	tgtgcgcaag	6180
tgtgtggaag	tatgtcccac	gaatgccacc	cacgagctga	actcccaccg	aagaagaaaag	6240
tggagccggc	tgctgccacc	gaagctgcgc	cacggcacaa	gagactgtct	aaggaataaa	6300
taacaacaaa	gaccacatag	attattatgt	tgaggacttt	ccgaatcggg	ggtattcacc	6360
ccccgaaaaa	aagttgtcgg	caggcaagcc	cgtagagggtg	ttgcctatcc	ctcacagggtg	6420
tcacccctct	tggtcagcac	at				6442

(2) INFORMATION FOR SEQ ID NO:1122

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 485 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...485

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1122

```

cggtctggata tgctccgaac gtccgttgcc tcgggagacg gtactgacct gcggttccaa      60
ttggagtatt  ggggcgatat atatcggttg atgaagcagt tttccctcaa gcctcggacg      120
aatggctgtt  cggtttttacc tcggatcatt gctttggatg aagcaaaaaca ggaaaatcct      180
attggacaat  gctcttaacg  cggcgagatg gagtcttctc agccgactgt cacggatcgg      240
tacttaagga  gttgcctccc gatcagctgt tacctcccga agctcctcgc ctgacggtca      300
ttggcttgga  accaacctgt  aagctcaggt agtattaggg caacgcatac atatgatttg      360
tttagagcga  ggagcttcgt  tttcgctctc tgctgaactc ctaatgggtg tcttggtgca      420
cattggtatt  tatggcacac cgctatcttt gcaaccgat  cttattcaat cctgacctcc      480
aatat.

```

(2) INFORMATION FOR SEQ ID NO:1123

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 523 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...523

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1123

```

ggagcctaaa  ccctcgcaga gggagggagt cngatgtgt  agtttcccga cttccgagta      60
caggttcagg  ctctgtattg agcaggtctt catatcggag gcctcgtgtc aggtattggt      120
tgtccgccgc  ttgcggagca tcaggtcttg gctcggagca atcggcagaa cctgtcccga      180
ccgatcgaga  actacttccg aagtactgct tacagaaaat gtaaagcccg aatgctgtcc      240
gatcttactt  tgtgggtaat aattggatta tatccggtcg gaatttctgt actttgatta      300
gaaataggca  tcccattttt ctttcaaaaa agaacacaaa tacttgatt  atgatgaagc      360
catctctttt  ttgacactt  gttgctgtgt ttttatggtg acaataaaaag gattagcaaa      420
accacaaata  gacaaagagg tgatcccata acgaagctga ctttacgaaa tccccagaat      480
ggaggcagcg  ggttttatgg acaaatatcc catgctctgc tga

```

(2) INFORMATION FOR SEQ ID NO:1124

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 975 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...975

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1124

```

cggaatatca gcgatttcgc ttatctcacg acactggatg ggatgctcgt taggcattta      60
ttgggacgat ggttggtact atgtctattg tagtggcttc tactcaatcg cttagagta      120
gaagagatgc aggatcatatc ttaccgctca cacgaatata gtactgcacg cagcacgagg      180
agggcaaggc ctataagctc tcatcaaggc tctatctctt gacgggtctag atatgtcggc      240
ttatttcagt ataaggacta gcttcataaa aacgattgca cctaacagca ttcttaagat      300
gctgttaggc gacttcttat tactgctgga gttgttgagt gaggcttctt gctcttgga      360
gaggagtgtg tgctggagct ggagttcggc ttgcgttcga tggctagttc gtagttcgtg      420
acacgagagc ggagcttgcg atggagtcgg aggagtcttc ggaggagaaa aggctgtcaa      480
ggctggcgat tttggctgtg tatagccgag ctccattcgt agaatacgat agcggagaga      540
tgactatcaa gggcttgatt gacgccatag agatgtgtcg cccaaccatg acgcaggcaa      600
ggacagcgat catcacacc ccatatgagcc attctgccag cgtttgacat cgaaaaggta      660
gtattttgaa agctttattt cgggtggggt tgtttagttt ggagttctgt caagagtttg      720
tcggtcgcctt cgtctgactt atccgtacct cggtaatgcc tgacttcatt tcgtagatgc      780
gctcccaagt ttagcaatta cttgacaaag ttcctctctg aatcgacgat gaactcctgt      840
tgctcctcta aaatcttggc gattcctgcg agattttttc ctttctcgac ttctccttgc      900
gactctgttg gttgtggtaa attggagata ccgctttgag ttctctgttc tgttgcttga      960
tttcttcgag tactt                                     975

```

(2) INFORMATION FOR SEQ ID NO:1125

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1509 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1509

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1125

```

cgccggcgag ggagaaatag acgaccatgc catcatcagc ggcggagtgt gatacaccag      60
ttcgtacgca tctctcagca tgtgatgata caagggtggtc ccgcctctcg aaggacatcc      120

```


ctccgtatgt	actggtggga	cgggatctct	cgtttattgc	ggaatcaaca	tcgtaggtct	180
gcgcgcgcga	aattttccaa	cgagcagatt	ttcctgatca	atgatattta	ccgcacactt	240
taccaagagg	actgaataat	tccgatgcga	tcgatattat	ccagcaggag	tacgcgattg	300
tcatgagaag	gaacttata	tagactttat	caagtcttcc	aaagcggcat	tgtccgcgga	360
accatggagt	gaagccatga	tcgggatatt	catggagcac	gcatcaagga	gcttgaccgc	420
tacacgatag	agcagcagcc	ttctcttcga	tcgatttagt	cgaacgagca	gccgccacat	480
gggtgtatga	ttcgaacgtc	tctacaccca	gcagcgccgg	atcgtagtct	tcgcgcgcct	540
ggcaataatg	gagcggatgc	cctgtgtgca	gcccgtattc	tgggcgaaac	ggctattcgg	600
tggatgcctt	tctcttcaat	gtcagcggat	cgctcagccc	gaatgcaacg	aatgcagggt	660
acgcctggtg	gagacttcgg	ggatcagctg	accgaggtgg	tggacaactt	cattccgcgc	720
gaactttcca	gccagccata	gtggtggacg	gtcttttcgg	cgtgggactg	aatcgctctc	780
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tcagagccac	acacaccctt	acgttcgaat	acccaaacta	tccttcctct	tctccgaaaa	960
cgccgaactat	gtacggcaagt	gaaagtcctg	aatatcggtc	tgagcgtcga	aggaaagcaa	1020
acgatcaagc	agagtatttc	ctcaataacc	atttcgatat	atccggcatc	atccggcacg	1080
ccctcgtttt	gcgcacaaag	gaacgttcgg	ccatgctctg	ctcatagggg	aagtcggggc	1140
aagatgggag	cggcttgtct	ggctgcaaag	gcttgttccg	aagcgggtatc	ggtctattaa	1200
ctacccatat	accgcctgtg	ggcgagctgt	catgcagacc	gccgtgccc	aggccatggt	1260
acatgccgat	gaaagacgga	tatagtctgc	gactattcct	ctccgctggt	ttttcaggct	1320
gtagtatcgg	ccccggcata	ggacgggcag	aaggcacagt	ccttttggtc	gaaagatact	1380
ttccactcct	aacggccctt	tggtgcttga	tgccgatgcc	tgaacatcat	tcgagaaaac	1440
cgcagttggc	tcgatcgtct	gcctatcaac	gcatcctcac	acctcactcg	cgagaactgg	1500
aacggctga						1509

(2) INFORMATION FOR SEQ ID NO:1126

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1108 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...1108

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1126

aacaaactca	acaaaaaaga	atatccaatt	agcaagatcc	aatataatta	gaagtcggga	60
agtttcttcg	ggcaacttta	atagtcgtat	caacgatcaa	tgcaccaaga	acatataacg	120
gaaaggacaa	gaaccgctta	aattcaagag	ccaaatttat	ttgtagattc	gtctttcatt	180
cttatattat	tatatataac	cattgtataa	atatccattt	actcttcatt	tgcaaatggg	240
ctttccagac	aaacttttagt	ctattttttg	atcagattca	atgatttaag	caaagaaatt	300
ggctatcaac	agctcgcact	tttcaatagc	aagtgtataa	acgaacaaat	ttaaggcaaa	360
aactgagaaa	tgagttctga	gcttcgtctt	ttgaacaggc	tgttcgatac	caatagcgat	420
aacaataaaa	gcgcagcaac	cggcctatac	ggctgggatt	tttgctactt	ttgtagagcg	480
atagggagtt	tcgacaatgt	aaatggtggt	tctggaaggg	cttgtctgtc	gaatagaacg	540
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ttctatacgg	tattatagg	gatttcatgc	ggcctatcag	gtatgtacca	tcgcgtggca	660
tgtggacaaa	ggagatatta	ttccatagga	gtaagcacga	ataggcatte	gatagcttct	720
ataacgtata	aggcaccacc	cgattctttc	ataaatcaga	tgggtgcctc	tgttttatca	780
gcttcaatat	ggcatttttg	gggctgcgat	tgatatacaa	atcattttcg	attctatata	840
tattgaaaac	gatttatata	taaatggaaa	atgggtttata	taagatcggt	attcgatata	900
acgagaaaag	tatttcaatc	tgaaaaagga	gatttccatc	tcttttgtat	cataaccaga	960
cttcttagag	ccggcttatt	ggaatgattc	taaactcctc	ttcgctgttg	aaaacttttt	1020
tggcacctat	tttcggtcac	aataccgatt	ttcttagttg	tttttaggcc	taagatcctc	1080
tctctttcag	cctgcagcgg	tgcaggct				1108

(2) INFORMATION FOR SEQ ID NO:1127

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4452 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...4452

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1127

```

ggcgcgagaa gtaaaatttt tacgcgccag aacgaaaaaa atctcgcgca cctcttccga      60
aaaacacgag ccgcagatgt gtaaaaaactc gcacagaaaa gttgatgtgg gtacaaaaag      120
aagaagagag aggaggagag ccccgattcc gataaaacta ctcaccagat accttccgaa      180
aacataaata tcggattgca tcaatagtgt cctaaaagtc agtttttggc aatagaaaagg      240
agaggacttc cgggtgtctct ccttcgttgt gttatcaaga gtctccttgg gccataatat      300
aagcctgctt gcccaagttg ttcgcttgta gcctcgcccc ttgttaagaa tctctcgcca      360
ggagttccca agtagacaag cacagcaatc cttctactac aaaacaacat acgatttttt      420
tcagtacagg tcatttcgat attttgtgtc tatatttgac aggtagtagc accgaatttt      480
ccatcgggaa aaagagtgtc gtgggcgttt aattagagat actaactcat gtatgggaat      540
ctctgtagat atgcaatcta agtttgcaat accaaggcgg acagatctat caaaaaacaa      600
gcgtattatg aagaaattta ttcaggactt caaagcgttg ccttaagggt taacgtagtg      660
gacatggctg tcggtgtgat catcgggcg cattcgaaa gatcgtcacc tcgttggtga      720
acgacatcat gatgtcccca tcagtttgct gacgggtggg gtcaacttca cagatctgaa      780
attgtattga gcaaggctgt cgtcgaaggc ggagaggctc tgaaaccgga agttcatgga      840
actatggcaa ttttatccag actacggtgg acttcctgat ttagcttctc tgatcttctc      900
gatgatcaaa gctatcatgg ctgccaaag gaagaagagg aggcacctgc agctcctgct      960
cctacgccac ctgaaatcga ctgcttacag agattcgcga ttgtctcaag aagcaataag      1020
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gggaatgggt gagaaataaa gagaaaccac tactcacaac tatcgaaatg gggcatgcac      1140
gctctgccga tagtttgggt agtggtttct ttgttttccg tttactcttt gataataagc      1200
gttccgattg aagaaaagtg tccgtataag tctgattatc acatttcttt tctatttttg      1260
tggtcgctca cgggttacat cccgatgacc tttggacgcc taccactcat gcaccggcag      1320
acgtcggagc agccgatgtt aacctccggc agtttaattt agaaaaatcac atcaaaaaga      1380
atctaagcaa tgattattgg cattccaaaa gagattatgc aggcgaaaac cgtgtgtcgg      1440
ctacccctga aacagtggcc aaattttagt agacgggttc aaagttctgt ttgaaaaagg      1500
agcaggagaa ggtgctcaga tcatgacgaa gaatatgccc aggcagggtg tacgctggta      1560
gacggagcaa ggccgtttat gacggtgccg aagtgatcct caaggtaaaa gagccttgtt      1620
caacgaacag ctcaatacgc acgaagtaga gctgatgcgc aaaggtagta tctgatcaca      1680
ttcattcatc cggcttcacc ggtgaaccca cgaaaggtag gcaatctggc caaacagggt      1740
gttatctcgc tgactctcga tggttccccc gtatctcagc tgcacaaaac ctcgacgcac      1800
tgacttcgat gagacttgtg ccggctacaa aggtatcctg atggctgccg aagacttcgc      1860
cacttcatcc cgatgatggg tacggctgtc ggtatgattc cgcccgccaa ataatgggtga      1920
tcggtgtggg tgtggctggc ttgcaggctt tggctacggc aagcgtctgg gagccatcac      1980
ttatgctgcc gatattcgcc ctgcagctgc gaacaggctc agagcttggg agccaaatcg      2040
tggtatccga ccgttcctcc gaactggcta tcgccgaagg cggatatgcc aacaaatggc      2100
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tatgaagtac ctacaaaaga acggtcggat cgaattggat atgaacgacg agtttgcagc      2460
aagatcctcg ttactcgca cgcgaaatc aaacacgcgc tactcgtgaa gcaatgggtc      2520
tgtaatcgaa ctgttcctac atcttaattc aagagccaag gaacgacccc tctcaagtgg      2580

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ccgtcctttg	gctcttatca	tttgagctaa	tacaccaatc	actcatataa	taatgaatcc	2640
gatcatctta	tcacgtgtct	gatagcttcc	acgcttatcg	gctacaagct	gatcacaatg	2700
tgccgagctt	gctgcatact	ccgctgatgt	cgggtatgaa	cgcttctccg	gagtaaccgt	2760
aatcggagct	attgcagctg	ccggattatc	tttaagtctg	ggcatgacgg	caaactcatc	2820
ctcggccaaa	tcttcggagg	acggccatca	tctcgcgtac	catcaatgtg	gtgggaggtt	2880
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gcctcgatgg	tggccttgct	taacggtgtc	ggaggggctg	cttccgctct	cgtgggattt	3240
tgtctctcgc	agctatagga	atcaatccga	ataataacac	ggcgccgact	atccgatctt	3300
ttcgcaagct	accggtatgc	tggcactgac	tgcggtatga	ttaccctcat	aggtagcctt	3360
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cgatgtttac	tctttgctac	tgatcctgac	cgtgggattc	gtggtgctcg	gttctgtttt	3480
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gccgtaggag	gtatttcggt	gccagtggtc	tgttgctgac	gcagattatg	tgccgcgcca	3720
tgaacgcaag	ctcatgtcca	ttctgatggc	ttcgggagca	aaagcaacac	ctgcgctaca	3780
acgccgacta	ctgcttcaaa	acaagaaaaa	ggagagggtg	ccctcctgct	cctgccaaag	3840
cagagaagac	agccggtagc	gtactgcgcg	agccaagcga	gtcatcatcg	tacccggtta	3900
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aacggtacga	agttcgctat	gccatccatc	cgggtggcgg	tcgtatgccc	ggacacataa	4020
cgtgcttctg	tgccaagccg	atgtgcctta	tgaccaactc	ttcgagagga	tgccatcaac	4080
ggagacttcg	ctcagacgga	tgccgtggta	gtaatcgtgc	caacgacgta	atgaaccctg	4140
ctgctcgcaa	tgctgagggt	acgccatata	cggtatgccc	gtgctgaacg	tggacgatgc	4200
tcccgaagta	atcattgcaa	cttcgacctg	aaaccgggtt	acgcagggtg	ggacaatccg	4260
ctcatacacg	agcaacgggt	gtattcctca	aactcggaga	tgccaaggaa	tcctggcaga	4320
gatcatgaag	gaaatggatg	ccacaggcga	tacggcagct	atgctgctcc	tgccaaagca	4380
gagaagacag	ccggtagcgt	actgcgcgat	ccaagcgagt	catcatcgta	cccggttacg	4440
gtatggcatt	gg					4452

(2) INFORMATION FOR SEQ ID NO:1128

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 432 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...432

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1128

gcgtctggtc	atgatccatt	cacgtccgtc	caattcaacg	atgttatccc	ggttaaattg	60
gacacatcaa	tatacgccag	gccactgaaa	caggagaaat	gaaaatatcg	cgaaccaa	120
ccaatctggg	tatggatatt	tcttttcaat	gattcgctga	atctcttcat	cggtagaaa	180
ccctctgctg	gaatctgcgt	atgaaaccgc	ttgttcacaa	aggggtcatg	agacagaaat	240
ccatgctgcg	cccataaaga	gtaatggttt	tgaaaagctt	caagattttg	gttgcgattt	300
cggacaacaa	tgagctacag	tcagcagata	tatctcaaag	ttagaatgac	caacggggta	360
agctctgaga	atttgagatc	cgttctgttg	tattcgcttt	gaggaatcgg	gtaaaatgcc	420
gttgcgtggt	tc					432

(2) INFORMATION FOR SEQ ID NO:1129

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 2701 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc feature
 (B) LOCATION 1...2701
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1129

```

cataatccaa gtcgtctctg aaaaacaaaag gccaatatag ccttttttgc gaaagtggca      60
aagaactttg ttaaattctt ttctcttcca ctaacaaact attcgttccg tcagggcgctc      120
ttccggattc ttgtcagggt cgtaaccggtc ttcaggctcg caccatagaa gcggggcgaag      180
agattccacc atcccgtttc catccgccga gaaaagcttt gagtagctga tagctcgact      240
gtgcaactgt cggtcgatca gcttgatcag gagcttcccc tgccggaggg tcagcgtttc      300
atctccggca tgtattgctg cttcatctcc ttttccatgc gctgagatgc ttttgtctgc      360
ttttctcacc gggcatcggt tccatatatt cgacgtttcg atcagagtag ctgcgatcat      420
tttggcatag ggcaagggtg gtttacatcc cgaatcagcc tccaaagctc ttgtctctcc      480
tgcggtgtca ctggcgcgac ttgtacttct tatgtttcac ccacacctgc ggcaaagcgt      540
gtcgtaacac gtatcacctt gctccatggt gactacggta ccgtagcgaa catggagtc      600
ggtataccca atcgcgggtc ttgcgcgtac agttggccaa gatcaagagc tgcaaccccg      660
acaaaaacag caaaaaacaat gctctttata catgttccaa acttacaaaa aaaccgattg      720
agactgctaa tatgatgtgg cacaaatcat aatcgattga ttcgcaaagt cttctctcta      780
aagcacagtc ctttacgtcc atatcgatgt attatagtc gttccggat aatcctcttt      840
atcgcaaaag aaattctcgg aacagtaggt ggctgccccg atttcttttg gttccaaaat      900
tttctgttta tgcgttccta aaaacgtggc tgagaaaatt ttcgttttg ttcgggaaga      960
aaataattct cgcgccaaag gaaaaaaaag tcgcgcgtgt tttccgaaa acgtggcccg      1020
gaattttcgt gattccgggt cgtaaaagag gaagtgtcaa aattcagttt agagtaaaga      1080
tactatcatt tgtataggaa aaccgctacc aaatggacaa aatcatctac ttgatagcgg      1140
tttttcttt atgattaagg tggcatttgt gtcttttgat agttggaaaa tccttttttc      1200
ggattttgac acagccccct tgtattccga ggaacgaaga aaccgctact ctttagttgg      1260
tcttcatcag gcgtccagac ggagcagttg atagtcgtag aacgagcggg cggcagcgtt      1320
gccgtggcct tgcgattgcg atagatgggt tgcacgcgct tgagttgttg cataggaggg      1380
tgcgaactac ttcatccggg gcctgcttgg agaaggccgt agacggaaga aggaatcggc      1440
tcggtcctct ccgcgctggt gaccgccaca ccgagagcac atgggaggtt gtcctcgctg      1500
agcttgtgcg acagggcatc agctcttcgg acagacggcg tgccgtattc ttgctttccg      1560
tggagagaca ctatgggccg acatgaggtc gatggccagg ttctgaatag aacgatcgca      1620
tcggtcagat tgcccttcac gttgaagatg gcacgatca gctcgtggcg taatccgtga      1680
gcttgtaacac acccggttgt ccggactgct ctgctcgtat atgcgtccta tgctaccggg      1740
gttgaagaga gccgccacca tggcttgccc aagaggtcgg tcatcccaga gttctgctct      1800
accttgttga ggaagccggt tcggccagcc actggcggtg tgtgcgagcc tgattgagga      1860
gcaattcatg gccttgcggt gcttgtcttt tgtgatgaag cgacgggaaa ggtattctct      1920
tcgccctggc ggatttcgaa gtgttccact cctccgatat gggcatgatg tggctcacat      1980
ggcggtagta ttgggacatg agctgtccgg catgtcgcgc agatcatcgt agcgagcttc      2040
cttttcgagg agccattttc catgttcttg gcgataatct tcaggttgct gatggacatg      2100
tcgccggacg gaagtgatcg ttactgagat cctcggctct atccgtgggg tcgatgtata      2160
ggggaactgc tgtgtccga aggtaaacat gggatcgctt ttctttcggc gatccaagcg      2220
ttcagtgctg cgttttctc ttcagccggt ttggtccggg cagcagacga taagcccagt      2280
tgatggcatg aatgtcatac acacgatgat ggaggcgtca ggcgtacacc acgctccaag      2340
tcgccgggct gccacaaaaa gttgttgcgg gcatagtcca tgatactcgg tgtggtaccg      2400
ttttttgggt gaactgcgga tcgcgcaggt tctcgatggt gaacgagtag tggcacccat      2460
gttgtgcatc aggcgatgg tgtgaccgat ctcgtagcgc ccacatagcg gagcgattcg      2520
cgcatcactt catcgtcgaa tacagcctgc gaacacgcgg atccacggct cccgtctgta      2580
cgaaacgcca gttgtgacga gagacaatac attgtgatac cagatcacat ctgcacaaat      2640
gatctcccgc ttcgcgggtc tacgaaactc ggccccatgg cgttggccgt ggtcgtgtgg      2700
c

```

(2) INFORMATION FOR SEQ ID NO:1130

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 492 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...492

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1130

tattccttat	agctggcagt	gtcctacaaa	agtgtctaag	ttcctaaagc	aatactcatc	60
gtacgcacat	gattcaaata	tctgttttcg	ttactcttaa	gtctctttac	cattacgtaa	120
tctacttgat	tctctttgac	cacattgatc	cgctgcttag	atacattttt	gtcgcaaagt	180
tggctttttg	tacagaagtg	aggtttgat	agcttgctgc	gcgaagatga	tcaagtaatc	240
tccaacgtct	aatgtgattt	tcgtaaaatg	ttctgtacga	aaatcgttca	tcaaggaatc	300
ggtttggtgt	gttctgtgtg	agtgtaagta	aacccgcatt	tttttgtagc	ctcttcgatt	360
tttcattgcc	gtcaaaaata	ccgcacccaa	ccctgtctgc	cgtaaatttt	caaaagcata	420
ccgaagcact	ttcgtttaca	gttcaggaat	taagccctgt	ccccaaaatg	gttcgccaat	480
ccagaatcct	tt					492

(2) INFORMATION FOR SEQ ID NO:1131

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 690 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...690

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1131

cgaagtatcc	gagcaaagaa	gaaaatagaa	aaacgataaa	agtagaatag	catacgacaa	60
tggcaatgca	gtatctgcaa	agatctgggg	gataaaaata	tcatgacaat	gcccccaagc	120
ataacaatag	aggcaacaat	aaaataaccc	acccctgaac	ggaaacaatc	tctcgtattg	180
tctctcgatc	attctcgcaa	tcggcttata	taatgtaaat	gatatagccg	tagctatccc	240
catctagaca	agttgagaag	gcctaagaga	ttagtaattg	tagtattgag	tcctggagtt	300
cggcacctaa	ggcatcaata	aaaactctac	gtgagaagaa	agtaaaataa	taagaagccc	360
ataaaacaaa	agtgagatta	tactattttt	tgactattgg	tcgttcgaga	agtcctccacc	420
agatattttc	ttatagttga	taaataataa	gacattgcac	aaaacataaa	ggcattgctc	480
cacctcatat	gggaatctta	gagctaaggc	caggcttcat	ttgatagtaa	aaatagccct	540

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cttatcctgc atactgctaa tagtccaagc cataaccgga tccaccaatc acgatgttcg      600
tcatagcgat gaagtctagc tagcgacacg aagagctacc aggacatgat gtcgattgga      660
taagtcgatc gggataatac tgggcaacca                                     690

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(2) INFORMATION FOR SEQ ID NO:1132

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 695 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...695

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1132

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aacaatatga cgggggtgga atacagcttt ggcaaagtct gcaatcctat tacggggatt      60
ccgtattcgg attcgtgagc aatagcggta tcaagataac cgcacggact gcccgaaatgc      120
gccggatatg ttcagccgat acggttacgc atcatcgaag ctgctggag cggtaaggga      180
tcgaccggat acgaggtaca cttcatgtca taggacagga caatctggcc atcgtgacga      240
acatacttcg gtcatacata aagaaccagg cgtatcgctc cgagcctatt cgataattcg      300
aaggacaatc tcttcgaagg ggtgttcacg gtcgaagtac ccgtacctcg acactatcca      360
tcttccttcg caagatccgt gctacgcatg ggtcaagtcg gccgaacgac attgacagcc      420
ccttgcaagt ctttagtagt gactacatgg tctggatgat gtgtatcgta ttcttgagca      480
gaacggcttg aagtctttag tagtggagta catggtttca gacagaatag cgtatatattc      540
tatcaatatc gtgtaatgtt ataagcggat aaggtatggc gagaatcctg ccaccggcag      600
gaaaaaagct gacggctatg cgtttatcac aggcctctca aggaggtata aaataaaaag      660
caatggctca gagttagtta atagggatta cgacc                                     695

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(2) INFORMATION FOR SEQ ID NO:1133

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 767 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...767

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1133

```

gaccatagta tcctctcata ggagaccata gtatcctctc ataggagaca tagtatcctc      60
tcatgtgaga ccatagtatc ctctcatatg agaccatata tcctctcata ggggaccata      120
gtatcctctt gtatgagacc atagtatctc tcgtggaagt tcattctttg tatctcaggg      180

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aaagaccggt	gagcagtgtg	tcgctgtcaa	gtaaacagag	agcagtgcc	gaatacgttg	240
ccaatgataa	gcatatcgac	ttggttcgaa	aatacattcg	ggctttccta	tatcattcgc	300
tggcatgacg	tccctgaatg	aaacctcttc	tcgtcggatg	atttccttgt	tgtgccatcg	360
ttttgtgtca	ttgagatcat	accataaaca	caaaaacaat	cggccgacac	actgtaaaaat	420
gaatggataa	agtgcctgct	tttgccgaaa	ggtctcagaa	aagaaaaaaa	cacaaagagg	480
gcgcacggtg	agatgcgccc	tctgcttttc	agtcgcccct	atcttcaggg	gattatttag	540
cttgtctatt	gagcctttgc	aacaggagcc	atcatgacaa	caacccgatc	tgctgcttca	600
agaggtctgc	cgcaaacctt	tgcaattcag	caggagtaga	ccgttcagta	cggattcgta	660
gtctgtgatg	aagtcatttc	cttcgagaaa	gacgccttca	gggcttcgag	ccagaaacga	720
ttctcacgca	gacttctttg	tgctgcttat	tcagggggac	cgagggg		767

(2) INFORMATION FOR SEQ ID NO:1134

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1776 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1776

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1134

gccaaagccg	ccgatattct	tttgcgtaga	ggctattttg	tttacaacct	ctgggcggat	60
ataaaggcta	tccgtacaag	taagtgtac	ctggagagtt	tcgggacagg	tttctctact	120
tgctctctac	ccatagctct	tgttttctct	cctttacccc	gaatggatcg	tcctaagcct	180
tcatatattg	ttcgaaagca	gccattctct	gcttgtttgt	cggcaggcct	ttgtttgccg	240
agagcatgtg	gactacgtcg	atccgctgat	cgggacgcta	agttcttttg	agctagtgcg	300
ggcaataacct	atccggtgat	cggtttaccc	tggggaatga	atactggaca	ccgatgaccg	360
gtgtaccg	tgacggctgg	caatatacct	accggcacac	aagattcgcg	gattcaaaca	420
gaccaccaa	cccagtcctt	gatcaacgac	tacggccaat	tctcccttct	tccccttacg	480
gcaccgcaga	gccatcatcg	aacgactcca	tagctctgac	taaatgggtg	aagcaactct	540
ttcggacgaa	cagacctcgt	ggttctcgca	caaagcggag	acggcgaccc	atactattat	600
agtgtctatt	tggccgatta	cgacacacgc	gtggagaggc	tccgaccgag	cgtgcagcta	660
tctttcgcat	acgttatctc	ggcaatccga	aagtggtctc	ggtcgatggc	ttcgtcttga	720
tgcttttacc	ggtggtcgga	gattagcatc	gtggatcctc	acaccgtagt	gggcataatc	780
cgcagaatag	cggaggtgtg	ccggctaact	tcgcctgtta	tttcatcctg	cagccgatac	840
tcctatggcc	gatgtcctgc	ttgagacaga	taccggcaag	tcgacgaagg	cacaagggca	900
tgggcagcct	gtcgtctcga	ttcgcaagaa	gtaccgtccg	ggtggcatct	tcttttatca	960
gtgtcgagca	ggccgaaaga	atcttgcgga	agtcaaaggg	cagagtttcg	accggatcag	1020
acttgccggc	gcgaagcttg	gaataagggtg	ctcggacgca	tacatgtgga	aggaggaaga	1080
aggatgagcg	cactacattc	tattccgcac	tctatcgctg	tctgcttttc	cccgctcgctt	1140
ctatgaggag	gatgtctccg	gcaattttgt	gcattaagcc	cctacaatgg	agaggtactt	1200
cccggttatc	tctataccga	taccgatctt	gggacacttt	tcgagccctt	ttccccctgc	1260
tcaatctgct	gtatccgatg	aaaacattaa	aattcaggaa	ggtctgctga	atgtatatcg	1320
cgaagtggct	ttttccccga	atggggccagt	ccgggccatc	gggattgtat	gaaggcaaca	1380
actctgcttc	tggtctggcg	gatgcctacc	tcaaggggtg	tgggtagaag	atacccgta	1440
actgatgaac	ggactcttgc	atgctacgaa	cccgcccatc	cgaaaatctc	ctccacgggt	1500
cgcaaagggt	gggagtggtc	aactccttag	ggtatgttcc	ggctgatgca	ggcatcgacg	1560
aaagtgtccc	cgtacgctcg	aatatgctta	taacgattgg	tgcatcctcc	gactgggccc	1620
acattggggt	gggatagagc	tgcatgggac	acgttggtct	atcggtgatg	aactatcgtc	1680
atctgggtcg	tccggaacc	aaactcatgc	gcggtgaaat	caggatggta	gtttccggac	1740
accttttttc	ctttcaaatg	gggaatgtat	tcacgg			1776

(2) INFORMATION FOR SEQ ID NO:1135

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 3597 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc feature
 (B) LOCATION 1...3597
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1135

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aggtgtcgga agaagttgtc cttgaccacg cgctttatcc ttgacgaagg catcaccttg      60
gtctgcgcac cgccgaagca gtgtaccatg ccatgaatcg acgactcatt tcgtccagta      120
tggccttgac cacaggggcg taggtactgt gggcgagagc acgagcttgc ctgctccag      180
ccccaatccg gctatgcacg ggtagccttc atgctgcccgc tatagaccaa atcgtccggc      240
accgaggatc gaaactctcc ggatacttct ctgccagata gtgggcaaaa acgtgtggcg      300
agcagaggtc agtccgttgc tccccatacc gccgttgtag tgctctcgta ggaagcttgt      360
ccgaatgagg ctaaccgcac gataacgtcg ccgccttgat acgggcattg tctatcacat      420
ccgatcgctt catccggcaa gcaccgtact gtccacgatg atagtctga cgagatcgcc      480
cacatcagcc tttcaccccc cgtggcatag gcattcacac ccatgcgacg cagatcgcca      540
ggagtctctc cgtgccgttg ataatagcgc ataccacttc gcccggtaca gccgtttgtt      600
ccggccgatg gtcgaggaca caagtatatt atccacgcac cgacgcacag cagatcgtct      660
atattcatga tcagcgcacg ctgtgcattc ctttccatac ggagaggctc cccgtctcgc      720
gccagtaaac gtatgaagcg agcttttggg gccggccccg tcggcatgca tgatattgca      780
atagcaggat cgcccccgag aatatccgga ataactcttg agaatgcctg agggaaaatac      840
ccttgctccac attcttgatg gcggcatgca catcctcttt cgggcccaga ctccgcgcag      900
gttatagcgt tcgttagaca tatagctgct tgtctttgtt ttcttgtttt agcgcaagcg      960
cagtatatcg cctcttgagg tatatatctg ccatccttgt cgttgagctt gtagagggtc      1020
ttcatccggt gccatagcgt tgggagatag tgtgcatcga atcgcccaca cgcactactg      1080
ctgtgtgtgt ttggagatgg agcatgcgtg ctttttctcc agatagacac atcgcccttt      1140
tcgatcggga aatccacggg agcatcgttg tatttgccag tttggaggct ctcatgtcga      1200
actcttcggc caaagaatcg aaggttcgcc ttgcttggtt atgatgtaga gcagtccgta      1260
gctgaagtaa gcttggtgctt gaggccgctc tgcttctgct tggtcgtttg atgggatttt      1320
ttgtggaccc ggggtaagac ttgtggaacc atgaggggta cttctcgcga tcaaagcata      1380
tagctcatac agctccacca tcttgatcag cagattggca tgccccgatt ggtggcatag      1440
ccacagcggt gcaaccctcg agcccagccg gatagctctc tctgtcgagt ttgaacaggg      1500
gacgatagcg tgggtggaga gaaatcgccc atgatcttca tacgattcgc gagcgccga      1560
atagctgcga agcattcggt cggcgcatcg tcggtagcat aggtgcgctt gcccgtcacg      1620
atttggtgca tttgatcccg aagtgattgt tgtgtacgct ggccaggtag tggctccggc      1680
tctgtctccc accaaagcct gtgctatggt gatgctgccg gtatattgta gcggtcatc      1740
tgctcgatag cttcgtcggc gtacgtttca cataagcctc gtatgtacgg tttegaactc      1800
gagcctgtcc gatgctgtcc cgaagaaaaa gagaaccgaa acggaaaagta tctgccaat      1860
gttgctctca tctgtttgaa atagttgcaa caaaacaacg ttagctacaa agtacaaaata      1920
aattgcagtc cgtcaggagg attcggagcg atctcttttg aaattttcag tctcttccct      1980
ctataatttg aatccctgag atatgaattg tgcttgtttt gataattgaa tgtagcaatc      2040
atgaagctat acgtacatag gagttcaagt gcgattgccc tgagtgatct acaccctctt      2100
tatttgctct taatacggac aggggatttt ccaattcctc aaccaataga tcgaccttgt      2160
acaggggttg tgattagcat aatctttatc cttgtgtttc aagcgagttt ttcggcatat      2220
cgcttgctca aaattccatc tccatggtct ttcatatggt gtaaaaggag ggatcattct      2280
tattgtatcg gaaagaatta tcataagtcg cttttgtatc aagttttcaa gtttggaat      2340
gtaagcatca cgctgatagg tacatccaga tattggaaat ggagaaggaa ccacaattca      2400
aagcttcggt tgtccaagcg catccgaaac catagctctt tgcaaggctc tagcttgatt      2460
aaaatcatca aaatcgctt tatcaaagac aacccaaatc gatcaaagcc taattcacgc      2520
tctttttcga gattatcccg aatctcttgg ctgcttcgac taatgcacaa gtagaacaac      2580
cttgctccct aatctctcct cacgaacttc cgagtagtgg ttgtcaatca aagccttaaa      2640
atagttggtt cgtctttttg tcttccacaa acgatcagga atcgaactat tatgtccggg      2700
tattctcttt gcgttttctt gcggcttttg cttctcgctt ttcagtttta gtcgttctat      2760

```


ttctcttttt	ggtggttgtc	ccatggctct	acattgaaaa	aatgaacggg	atagctccat	2820
aacgtccggt	aatatagtcg	tttgaaaact	ccgatcttta	cgaactttta	ctccttctgc	2880
atctcgaaac	ttatcaatga	ataaagatcg	gaggattctg	tcctgtcttt	ttccgtgaac	2940
agatttgatc	acggcgtaaa	taatcgccct	tcagcagatt	tgtgtcgtgg	tattaaagat	3000
caactgtgct	ccattgggat	ttgtctccgg	agacataaca	acttcagaat	acttctggtc	3060
aaaagggggg	ggagtttggc	atctaatacg	ctatcagcaa	aacagaacct	tctttcaatg	3120
tgtcgaataa	agggccgaaa	gctctatgac	tttcttggtt	ccttccgatt	ccatttcac	3180
cttgggaaaa	ttttttcctc	gacctgatta	ccgtcttggt	catataccca	atgaaagttt	3240
tgattttctaa	tacgcttcgg	ccatcgaatt	ctttcaatat	gaatctttca	attcatccgg	3300
tacttccttg	agtacatcgt	tcgaaagagg	ttctctgtga	cgatcaagtc	tttgaatcct	3360
aactgcgtgc	gacggaagaa	gctttggctt	cattacatcc	ttccggattt	tctttgagca	3420
ttttcagggt	aagccttcat	aaccctgttt	ttctacaacc	gaaataagat	tgcaagtcta	3480
aaccagtcca	aaatagaaga	tgattttctt	ccatttagct	gcgcacacag	gacacaaaaa	3540
gtctattccc	gggcgtagca	tctgctttgc	tatcacctcc	ggaaatcgct	tcttgga	3597

(2) INFORMATION FOR SEQ ID NO:1136

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 756 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...756

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1136

gtgtcggaac	agctaagaga	cgggatagcg	ttcttcgccc	gaaagtaccg	cacatgaaat	60
acctggccta	tttccaagcc	tataccaata	cctatggaag	caagccgaga	tcacccgtaa	120
atacgaagag	gctctgaact	actacgagta	gtaggcatta	ttataggtac	cagaccggac	180
tgcatgccgg	attctctttg	tcctacttaa	aggatttgct	ggaaagagta	ttcgtttctg	240
tggaaatggt	gtagagagta	cactggatgc	cactcttcgg	cgagtgaatc	gtggcacctc	300
tggtcggata	gtatggcagc	tatcgagcga	acggctaaga	ccgattgccg	ataggtgtgc	360
atctgatect	cgggctgccg	ggggaaagca	gaaagatata	ctcaggcacg	cggacaagat	420
atcggcattg	cccgtcacta	cctgaaattg	catcaactgc	aaattatccg	cggtacggct	480
atggccaaag	atatgcagag	agtccttcgg	actttcattt	ttactccgag	gaggaatatt	540
cgatctgtgt	cttgatttca	tcgaacgcct	gcgtcctgat	attgtgctga	gcgtttcgta	600
tcgcagtcct	cggccgaact	tctcctgatg	ccgaaatgga	ttgaagaatc	acgagttcac	660
acacctgatc	cgctcgcgca	tttcaaaaacg	cgatatcaga	cagggacgga	ctggaaagat	720
aattcccttt	gctattctac	aggaagaaac	cggtgt			756

(2) INFORMATION FOR SEQ ID NO:1137

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1349 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1349

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1137

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ggctgataga gcgacaatta ttcgggcacg tacagataga ggaacgaggg agaataaaaa 60
acctcgtaga tgatgggaca ttcgtccatt gccagcacca aatctacgct taaatcacag 120
gccaaaagat tgcaaaggat atggagagct gataaagaaa tatacgggtg ccgttgtaaa 180
tagaagaggt tttattaaga tccacaatag gattgtgtag ttttgcatcc gtcataaggt 240
ctccttacgt catgaacaga ttaagggaag cattaaaaga aagggggaatt actcaacgga 300
gctttcaact cgcttgggca agagctttta tatggtcaat ctcatgttgc caacaagcat 360
cagccctcaa ttcctaccct cttccaaata gcgagatttt ggatatggac gtaagagatc 420
tcttggtatc taacaagcaa caaacaata atgaaactga tagatataac aaaaggatcg 480
gaacacgacc cagtcttttc tcagacgaaa agattgccac attagagtct cgtatcactt 540
aaaggaaggg aaaaaagggc ctatttccta tctttcctgt ctcgttcgaa gcaggagatt 600
aagcttacc ccgaggaggt agtgcgtcag ttatatcaat ggtgcttacg gaagactttg 660
gttatccact ttctcgcac aaattgagta tgaggtaacc ttcggtcggg aaaagaagcg 720
agccgacatc gtcatttcga caagcaacaa acagatagcc cttatatcat cattgaggtc 780
aagagccgaa actcaaggat ggtaaagagc aactcaaaag ctattgcaat gccctggagc 840
acccatcggt gtatggagta atggcaagag catatcctat tacaccgtaa agaccctaac 900
tattttgaag acatcagcaa tatcccagaa gtgatcaaaa actttcagat attccttcgg 960
agcgttgagc gatagcagac ttatagaaaa agataagctc attagegaac gcaagtcgct 1020
caaagaccta tcctcgaaat ggaagacgaa gtgttggcag gagctggggt ggatgtgttg 1080
aagaggtatt caaacttatc ttcaccaaac tttttgatga gatggaggcg gacgcaacaa 1140
tgagcgcaac ctcgagtttc gcaactatgg cgatacgaga ccgaactcaa agagcgcatc 1200
caaaatcttt ttgataaagc tcgtgcaaat gggaaggtgt attcagcccc gatgccaaga 1260
tacagctgac gccctcacc tttctgtctg cgtagcatcg ttgcaggacg ttaagctctt 1320
caatccaatc ttgatgtggt gggcgaagc

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(2) INFORMATION FOR SEQ ID NO:1138

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1078 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1078

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1138

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ccggcgata tgcctacccc ggtactccct ctacggaaat caccgagcaa tccaaaactc 60
tcggatggct aaggaaagaa atgtccatcg ggaatggggg caaacgaaaa aaccgctatg 120
gaatcaagct ctccgcatgt cctacgcggc aagcgcgctc tcgtatgtat gaagcatgtg 180
gggatgaacg tagcagagac tgctttatga atgctgccat caccggtgcg aatggcggtg 240
tggtgtcggt gctgcccagc acccctctat gcactcgtct caaaatgaac aagatctcgc 300
gtgtatggcc agtttgccat gattcctgtg atggagccat ccaccaacag gaagcttatg 360
acatgacgcg ccttgccctc gatctatccg aagtttggtt acaccgctca tgatgcgtat 420
tacgactcgt ctcgctcact ccgtgccggt gtcgttcaga ccgagccgat cggagagaac 480
gaattgcacc ctcggaagac aaacgccaat atgtattgct ccccggtatt gctaagaaag 540
atacagaatc ctctcgaca agcagaccga tttcgtacgg gagtccgaaa ctaccctat 600
accgaatatg tcgatgccgc tgataagtcc aagggttaagt ggcatgcggt atcgcataca 660

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actacctgat	ggaggctttc	aaggctaggt	gccttatccc	gttctcaaag	taacgcagta	720
tcctatccct	cacaacagat	ggagcgattg	ctcaacgaat	gcggtgacat	cgtagtcatg	780
gaagaggcta	tcccgtggta	gaacagctac	taaaaggctt	ccccggtttg	gagggatcaa	840
aggtcgtctc	gatggcacat	tgccccgtga	tggagagttg	aaccggatca	tgtggcaaaa	900
gccttcaata	taccggtcgt	ggagggagaa	ctatccccga	tctcgttgcg	gcacgtccgn	960
ccgccctgtg	caaaggctgt	gccaccgcga	tgtgtacgat	gcgctgaacg	aggttcttac	1020
agaatatcca	acggacgtgt	cttctccgat	atcggatggt	atacgcttgg	tgctttgc	1078

(2) INFORMATION FOR SEQ ID NO:1139

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 967 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...967

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1139

gcctccgatg	tggatgaatgc	cgtgatcatg	gctcccactc	gcgaactggg	cagcaaatag	60
atcagcaagt	ggaagggttt	tcttacttca	tgccggtacg	gccgtagcca	tatacggggg	120
tacggacggg	gtggcatggg	agcagcacgt	cgggggatgg	ctatgggggc	ggacatcgtg	180
atagccacac	cgggactctg	atctcgcata	tgaatctcgg	ttcggccgac	ctctcccacg	240
tctccacttc	gtattggacg	aagccgaccg	catgctggac	atgggtttct	tcgagacatc	300
atgcagatat	acaagcagct	gccgagttcg	tgccagacgg	ttagttttcg	gctacgatgc	360
cccccaagat	ccgcaagctg	gcagcatcta	tttaagggat	ccgatagagg	tggagatcgc	420
catcagccgt	ccgcccgcga	gatcatgcag	agcgcataca	tttgtcacga	agcgcagaag	480
ctgccgatac	ccgcaagctc	ttcgagcagt	cggctccgaa	gcgtaccatt	attttcgccc	540
ggccaagctc	aaagtgcgtg	agctgacttc	cactctccgc	aagatgggtt	caatgtggcc	600
gatatgcact	ccgatctgga	gcagtcccgag	cgcgaacggg	gatgcgcgac	ttcaaaaacg	660
gctatgtgga	tgtactttgt	gccactacat	cgtagcgcga	gggatcgaca	tcgacaacat	720
acgcgtagtc	atcaatacga	cattccccac	gatcccgcga	actatgtaca	ccgtatcggg	780
cgtatgcccg	aggaacaaac	ggggaggggtc	tggctatcac	tttcgtctcc	gagaagagca	840
gagcgacttc	cacaagatcg	agacgtttct	gggcaaatcg	gttataaatt	gcctgtcgat	900
ctggagtttg	gtgaagtccc	ggcttacgaa	cggcgaaacg	tcgccctcgc	cgtttggggc	960
gaagcgg						967

(2) INFORMATION FOR SEQ ID NO:1140

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 579 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...579

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1140

```

ggctgtgaag tttatgaata gattcgggga agaattgata agaggtgtcg ctggccgaag      60
tcatatacac gctacttgct gccattgaa gggttttctt ggagaaagtc gggaaaaagg      120
ggattcccat cgaactccgt cctgcatcgt tcggtatcag ggtgcatctg cttcgattcc      180
gaatatagcc ctcttgata cacatagtgc cctaaagctt tttaacgtca gttcgacgtc      240
tatatataac gtgagttcga tataagcgtt atggtgccga ctctcataag tattgtcgat      300
caatcctttg ttgggttaac tataaccgat cagaaaatga aaggaaaaaa tttgacgtct      360
catcggatgt cgaagtctcc cgaagctgaa attctcaacc gagaaatgaa atacgttgac      420
aaacagcata ttgcatgttt tcttgatcg aatccgcatt gttttatagc cgttcggaac      480
atactccgaa gggggtcgag ctacgcccta cagcgactcg ggctacgccg tanagcgtac      540
gagctgcgct ctacggctct ttcgagctac gctgaaggc      579

```

(2) INFORMATION FOR SEQ ID NO:1141

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 680 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...680

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1141

```

tctaaaagga tataccgatg aagatagtaa tatgcggaca gctatgcagt ctaccggcgg      60
atttggactg gagcgggtatc gaagaaatgg gcgaatgctg ttctacgaat ataccggtcc      120
ggaggatttg actctgcgtg ctgtcgagct gaaatagtgc ttaccaacaa gactcctgtg      180
actgcggccg acatggaaag atgccccacc tacgttacat cggactgatg attacaggcc      240
ttaatttata gatatggatg ctgctcgtca gcgtgggtatc accataacga acatccccac      300
tatagcacag aatcagtagc ccaaattggca atctcgcata tacgcacata accatgccga      360
tcggagaact ttcccggcag gtgaaagatg gtgctggcag agcaattacg aacaaatctc      420
tcgcaatact tatcagatag actgagcggg ctgacgatgg ctatcgtggg acttggggca      480
ataggtacac tgtagcggaa atggcacgtg gattcggcat gaagattttg gcacatacac      540
caaatctcca atcgagttgc cttcttatat agaaaagtcc cgatagccgg agaagctttt      600
ctcttcgggc tgatgtgctg agtctgcatt ggccgctaca gtgcaaacc aaagatggtt      660
cggctgatta gctggccttg

```

(2) INFORMATION FOR SEQ ID NO:1142

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 625 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...625

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1142

```

tccagcttac ggatttggtt acccgatagt tcaagcggtg ctaaggacgg agacgttcca      60
gaccctccag cttacggatt tggttatcca aaagataagc tccgctaacg aggtgagacg     120
ttccagacct tctagcttac tgatttggtt tcggagagag aaagttttgt tagcgagggtg     180
agactatcca ggcccttagt ttactgatct ggttacttct tagacgaagc tttgttaacg     240
aagtggacgt tccagaccct ctactgtact gatttggtta cccgacagat aaagtccggtt     300
aaggacgtga gacgttccag accctctagt ttactgattt ggtatccaaa agataaagct     360
ccgctaacga ggtgagacgt tccagaccct ctgcttactg atttggttat cggagagaga     420
aagttttggt agcgagggtg gctatccagg ccctctagtt tacggatttg gttacttctt     480
agacgaagtt tgtaacgaa gtaagacggt ctagaccctc tagcttactg atttggttaa     540
cgatagatca agctttttta gacgagaaa atcaataagc caagtcactt ttctatctga     600
cattctcgca agcaaagctc aacga                                     625

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(2) INFORMATION FOR SEQ ID NO:1143

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 594 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...594

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1143

```

aagagataaa gcaaattgac attgcttggt accagcaaag catcatacct tcttcttcca      60
ttgctatacg tacacgctct tggcgactct ggagatctcc ttcaaggctg cagggtgctaa     120
tttgatcata atattttgag attattttgat taacgaaaca aaagtactga atagcatatt     180
cgcaagtcac gaataacacg atttatcagt acagaaagct gtcttatccg attatagaaa     240
gtcttccgat ttcccgattt gcttcttcta ttgcgaaaa tcccgtgcaa tagtccatac     300
agtgtgtcta tgcatttgct ctctttactc ctgatgcact ttgaatctac tcgaatgagc     360
ctcaaaagcc tgctccggcg ataactctcc aatccggcaa aatttatctg accgacgaag     420
ctgtgtagca ccactcctcg atctgccatg atccgttgcc aatcgctgta tggactatct     480
ccccttcaga acaataccta atcgggtttcg gcaatccggt ggctatactc gtctgtgtac     540
catggcatca atacttaaca atcgtgccac ttaactctaa ctatccagct actc          594

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(2) INFORMATION FOR SEQ ID NO:1144

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 726 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

 (A) NAME/KEY: misc feature

 (B) LOCATION 1...726

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1144

gcgatgcttt	cgaaagattg	cctcagccgg	agccgattcg	cagacggctg	tacgcgtcgg	60
ctcctctcct	gttcatgagg	agcgaatggt	tcatacagcga	taggagattt	gtgcgtgggc	120
gacacggtgg	cacatgcgcg	cttcggatag	gaatcatcga	atccctcgaa	ggagaaggcg	180
ataatgccaa	ggctgagttt	cgtttcagca	ggtaggacgc	aaacgtctgt	tacttcggtt	240
tgccagctat	ccaaagtgga	aaaagattcg	atctgaacta	cagtgttctg	tactaaaaac	300
gtttaggaca	ctattgggtg	tacaccggtt	tgctctttga	ggtttattgc	ttcgtggggg	360
tatatttccc	aaaagcaatc	ctttcttctt	attgttcaaa	accatgagac	tgactcagcc	420
atccatgagg	tgctctaagt	taaagctaag	tgtcgaacgc	ccttgagggt	agttctgtgt	480
acaaagatcg	taaccgatat	cgaatcagtc	aataacccaa	gatgaatcat	ccgagtataa	540
acacgagggc	gatgttcata	ataaccggtg	ccccaaangt	ccagctccga	ttgtagagtg	600
gagattctat	tcctaagagt	ccattaatag	catagggagg	acatcggtca	tgatgcgtcg	660
ctcctaattg	attgcaatcg	aggatagctc	cggatttggt	cttcatagat	ggactgagat	720
agataa						726